

Exhibit 8

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY**

**IN RE: JOHNSON & JOHNSON TALCUM
POWDER PRODUCTS MARKETING, SALES
PRACTICES AND PRODUCTS LIABILITY
LITIGATION**

MDL NO. 16-2738 (FLW) (LHG)

THIS DOCUMENT RELATES TO ALL CASES

**EXPERT REPORT OF GREGORY DIETTE, MD, MHS
FOR GENERAL CAUSATION *DAUBERT* HEARING**

Date: February 25, 2019

A handwritten signature in blue ink, appearing to read 'G Diette', is positioned above a horizontal line.

Gregory Diette, M.D., M.H.S.

I. SCOPE OF REPORT

I was retained by Johnson & Johnson and Johnson & Johnson Consumer Inc. to review the epidemiological literature regarding the hypothesized connection between talc or asbestos in talc and the development of ovarian cancer.

II. MY QUALIFICATIONS

I am a professor of medicine at the Johns Hopkins University School of Medicine. I hold joint appointments in the Departments of Environmental Health Sciences and Epidemiology in the Johns Hopkins Bloomberg School of Public Health.

I received my M.D. from the Temple University School of Medicine. I completed my residency at the Hospital of the University of Pennsylvania and performed a fellowship in pulmonary and critical care medicine at Johns Hopkins. I received my M.H.S. in Epidemiology and Clinical Epidemiology from the Johns Hopkins Bloomberg School of Public Health. Currently, I am an attending Physician at the Johns Hopkins Hospital and the Johns Hopkins Bayview Medical Center, practicing both inpatient and outpatient care.

My areas of clinical expertise include internal medicine, pulmonary medicine and critical care medicine. My areas of research include environmental impacts on lung disease and epidemiology of chronic diseases. I have published more than 200 studies in peer-reviewed journals on a variety of medical and scientific subjects, including the epidemiological study of disease causation, disease risk factors and gene expression, as well as the health effects of environmental pollutants. In addition, I am a peer reviewer for a number of journals. I have also repeatedly lectured and instructed on advanced research methods in epidemiology.

I currently hold multiple positions related to teaching and clinical research. I am an attending physician at Johns Hopkins and a member of the American Thoracic Society, where I served on the Board of Directors and have participated in a number of its teaching programs, including the Methods in Epidemiologic, Clinical and Operations Research program. I also previously served as the Director of Clinical Research in the Division of Pulmonary and Critical Care Medicine for almost 14 years.

Additional information pertaining to my background and qualifications can be ascertained from my curriculum vitae, which is attached to this report, together with other required disclosures. I am being compensated at a rate of \$485 per hour for my work on this case and \$600 per hour for testimony.

III. SUMMARY OF OPINIONS

The body of relevant epidemiological evidence does not support a causal connection between perineal use of talcum powder products (whatever constituents those products may contain in addition to talc) and ovarian cancer. As fully set forth below:

1. The epidemiological literature shows a non-existent association or, at most, a small association between perineal talc use and ovarian cancer that constitutes only weak epidemiological evidence. Because any purported association demonstrated in the literature is weak, it may well be attributed to factors such as confounding, bias or chance.
2. Studies have not consistently shown an association. The prospective epidemiological studies (cohort studies) do not show a statistically significant association; the hospital-based case-control studies do not show a statistically significant association; and only a subset of the population-based case-control studies show a statistically significant association. If consistency could be drawn from these inconsistent results, it would be a consistency of null results because case-control studies, which are more easily subject to certain biases and confounding factors, are not the best evidence for proving causation.
3. Evidence of a dose-response relationship is lacking. None of the cohort studies reveals a dose-response relationship, and only a handful of case-control studies, including those analyzing “cumulative” talc use, have purported to find one. Moreover, study authors and plaintiffs’ experts all agree that there are major challenges to interpreting the study findings on dose-response because there can be no assurance that any estimates of talc use are accurate or valid. Indeed, there is not a single epidemiologic study of ovarian cancer and talcum powder that has used, or purports to have used, a validated measure of talcum powder use. Without a validated measure of talcum powder use, it is impossible to correctly determine whether or not an exposure occurred or the quantity of purported exposure, casting considerable doubt on any purported causative relationship between perineal talcum powder use and ovarian cancer.
4. The theories as to how talc or asbestos would reach the ovaries have not been validated, and the scientific community has repeatedly expressed the opinion that the potential mechanism by which talcum powder is associated with ovarian cancer remains speculative.
5. Additional Bradford Hill factors – temporality, coherence of the association and analogy – are not satisfied based on the available epidemiologic evidence and do not support the allegation that talcum powder use can cause ovarian cancer.
6. To the extent plaintiffs’ experts opine that asbestos is an accessory mineral present in cosmetic talc that causes ovarian cancer, this theory would not alter the analysis because the existing epidemiological literature regarding perineal talc use would necessarily account for the presence of any asbestos in the products used in those studies. Plaintiffs’ experts’ asbestos-based theories are also problematic due to the lack of a plausible mechanism by which asbestos could reach the ovaries and a lack of any reliable epidemiology supporting such a causal connection.

IV. APPROACH

A. Bradford Hill Framework

Epidemiologists and other scientists are often tasked with determining whether or not an exposure can cause an illness or condition. After an association has been demonstrated, criteria articulated by Austin Bradford Hill in a lecture in 1965 are often employed. These Bradford Hill considerations, or criteria, are considered the gold standard for assessing causation based on observed associations. The nine considerations are: consistency, strength of association, specificity, dose-response relationship, temporality, biologic plausibility, coherence of the association, analogy and experimentation.¹ In applying these criteria, an epidemiologist should consider all available evidence, which can be assessed and graded according to its sufficiency (or lack thereof) to establish a causal link. Evidence typically comes from research studies that involve humans, but it can also include well-designed studies of animals or in vitro systems (toxicological and experimental) to provide supportive evidence, especially for plausibility.

Another useful factor for assessing causation includes consideration of non-causal explanations for the results of individual studies.² As explained further below, these other explanations can come from bias, confounding and chance. For example, drinking coffee might be correlated with a higher risk of lung cancer, but the cause of the additional cases of lung cancer among individuals who drink coffee would be smoking cigarettes. In this example, the obvious confounding factor is that individuals who drink coffee are more likely to smoke. But confounding factors are not always identifiable, even after extended study, and these and other factors can consistently drive statistical associations that are not causal in nature. Such limitations can be quite important, as they can lead to risk estimates that are falsely higher or lower than actual risk, and they can even lead to conclusions that an exposure causes a disease when it does not, and vice versa.

B. Methodology

I was asked to assess whether perineal exposure to talcum powder causes ovarian cancer. Based on my extensive qualifications and experience, review of the available studies and data and assessment of the Bradford Hill factors, I conclude that the observations and evidence to date are insufficient to find a causal relationship between perineal exposure to talcum powder and ovarian cancer.

My opinions are based on a review of the epidemiology literature relevant to the evaluation of the association between perineal talcum powder use and ovarian cancer. In my review, I considered case-control studies, prospective cohort studies and meta-analyses. I did not consider randomized trial data, since I am not aware of any such data reporting on the presence

¹ Hill AB. The Environment and Disease: Association or Causation? Proc R Soc Med. 1965; 58(5):295-300 ("Hill 1965").

² Elwood JM. Causal Relationships in Medicine: A Practical System for Critical Appraisal. Oxford: 1988, 163-182.

or absence of an association between of talcum powder and ovarian cancer. Because the accuracy of the findings of case-control and cohort studies can be influenced by bias and confounders, I carefully considered whether there was any indication that these sorts of errors affected the results.

In evaluating the epidemiologic data and other scientific evidence under the Bradford Hill framework, I primarily focus on whether the criteria of strength of association, consistency of the association, biologic gradient (or dose response) and biologic plausibility have been met. Although it is not essential to address every factor under the Bradford Hill framework, as plaintiffs' experts acknowledge,³ I also address specificity, temporality, coherence of the association, experiment and analogy.

Lastly, I reviewed several of the reports submitted by plaintiffs' experts and their depositions. A number of these experts claim to have analyzed the Bradford Hill criteria and to have concluded through these analyses that perineal talc use causes ovarian cancer. I assess and address several of plaintiffs' experts' methods and analyses in this regard.

V. STUDY DESIGNS

Epidemiologists recognize that there is a hierarchy of evidence with respect to human studies. Clinical trials are often considered the strongest type of evidence, followed by observational studies (cohort and case-control). The lowest quality of evidence comes from case reports, case series and descriptive studies.⁴

There are two main types of epidemiological studies at issue here: prospective cohort studies and case-control studies.

Prospective cohort studies consist of identifying a large group of healthy individuals who differ in the key areas being observed and following them forward in time. Based on the data collected, it is determined how the factors of interest, e.g., exposure to talcum powder, are associated with a certain outcome or disease. Cohort studies are widely regarded as more reliable than retrospective case-control studies because they are not susceptible to recall bias, which is the propensity of study subjects with the disease that is being studied to inaccurately report their exposure to the agent at issue, a phenomenon that can generate inflated risk estimates.⁵ Cohort studies generally avoid this pitfall because they are prospective rather than retrospective.⁶ Due to the ability of cohort studies to assess exposure at baseline instead of relying solely on recall, they can be better suited to detect risks from exposure to an agent.

³ Smith-Bindman Rep. at 36; Singh Rep. at 62.

⁴ Elwood at 174-175.

⁵ Gertig DM, Hunter DJ, Cramer DW, et al. Prospective Study of Talc Use and Ovarian Cancer. *J Natl Cancer Inst.* 2000; 92(3): 249-252, 252 ("Gertig 2000"); Langseth H, Hankinson SE, Siemiatycki J, Weiderpass E. Perineal Use of Talc and Risk of Ovarian Cancer. *J Epidemiol Community Health.* 2008; 62(4):358-360, 358 ("Langseth 2008"). *See generally* Leon Gordis. *Epidemiology.* 5th ed. Philadelphia, PA: 2014.

⁶ Although there are also retrospective cohort studies, those are not at issue here, because the cohort studies involving cosmetic talc use are prospective in design.

In case-control studies, individuals with the disease of interest (cases) and those without the disease of interest (controls) are first identified. These two groups are then compared to assess any differences between them regarding a specified exposure. Case-control studies can be further broken down into population-based and hospital-based studies. Hospital-based studies draw their control population from patients who are hospitalized with conditions other than the one under study. Population-based studies draw study participants from the general population.

VI. REVIEW OF EPIDEMIOLOGY DATA

In forming my opinions, I employed search tools, including Medline and Google Scholar, to identify studies that examined the association of perineal talcum powder use and ovarian cancer. I also reviewed the reference lists of individual studies and the meta-analyses to assemble a complete list of studies. Specifically, I first located and reviewed the relevant cohort studies, meta-analyses and case-control epidemiologic studies. I then reviewed how other medical experts or other professional organizations interpreted those studies. My reliance list, which is attached to this report, is comprised of all studies located and assessed specifically for this case. In total, I identified and reviewed 32 case-control studies and three prospective cohort studies published since 1982 that pertain to perineal talc use and ovarian cancer.

It is my understanding that plaintiffs are asserting in this litigation that talc products contain asbestos. The epidemiological literature concerning talc products and ovarian cancer generally has not attempted to investigate the question whether asbestos is present in talc as an accessory mineral. Nevertheless, if talc products have generally contained asbestos, the epidemiological literature would reflect the risks of asbestos in talc.

A. Strength Of Association Is Weak.

The first Bradford Hill criterion, strength of the association, refers to the magnitude of the risk of developing a given outcome in the presence of a measured risk factor. In the studies discussed in this report, risk is reported in various ways – as a relative risk (“RR”), odds ratio (“OR”), or hazard ratio (“HR”) – typically with a confidence interval (“CI”). A relative risk “of an event is the likelihood of its occurrence after exposure to a risk variable” – here, talcum powder or asbestos – “as compared with the likelihood of its occurrence in a control or reference group.”⁷ An odds ratio is “a comparison of the odds of an event after exposure to a risk factor with the odds of that event in a control or reference situation.”⁸ A hazard ratio is a type of relative risk that measures “how often a particular event happens in one group compared to how often it happens in another group, over time.”⁹ In each case, the risk is expressed as a number for which 1 is the denominator, so that a relative risk of 1.3, for example, would mean that the outcome of interest occurred 1.3 times as often in the exposed group as compared to the control

⁷ Andrade C. Understanding Relative Risk, Odds Ratio, and Related Terms. J Clin Psychiatry. 2015; 76(7):e857-861.

⁸ *Id.*

⁹ National Cancer Inst., NCI Dictionary of Cancer Terms, “hazard ratio,” <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/hazard-ratio>.

group – a 30% greater incidence. A relative risk of 1.0, by contrast, would mean there was no difference. In each case, a confidence interval can be calculated to determine statistical significance – in essence, whether the difference between the exposed and unexposed groups is likely to persist if the same study were repeated. When a confidence interval contains 1.0, the result is deemed not to be statistically significant because the possibility that there is no real association is within the expected range of results. It is typical to calculate a 95% confidence interval, expressed in this report as “95% CI,” meaning that if the study were repeated, the results would be expected to fall within the confidence interval 95% of the time.

While there is no absolute cutoff to define a large versus a small relative risk, Hill provided examples of large risks, including the 200 times risk of scrotal cancer in chimney sweeps, an estimate of 9-10 times risk of lung cancer in smokers and 20-30 times risk of lung cancer in heavy smokers. As an example of a low risk, Dr. Hill used death from coronary thrombosis in smokers, which he described as “no more than twice, probably less” than the death rate in non-smokers. Dr. Hill further explained:

“[T]hough there is good evidence to support causation it is surely much easier in this case to think of some features of life that may go hand in hand with smoking—features that might conceivably be the real underlying cause or, at the least, an important contributor, whether it be lack of exercise, nature of diet or other factors. But to explain the pronounced excess in cancer of the lung in any other environmental terms requires some feature of life so intimately linked with cigarette smoking and with the amount of smoking that such a feature should be easily detectable.”¹⁰

What this passage from Hill means is that low observed risks are more likely to be non-causal than are high risks, because the effects of distorting factors (such as confounders and bias) have a greater chance of being the true explanation for the observations. Because very small risks are obviously highly susceptible to distorting effects in observational studies, further evidence is required to demonstrate that the purported association did not arise from bias, confounding or chance alone. Plaintiffs’ experts express opinions about risks articulated as approximately a 1.2-1.3 odds ratio.¹¹ This is considered a weak association by the scientific community, as some of plaintiffs’ experts acknowledge.¹² To the extent other plaintiffs’ experts dispute this point (most notably Dr. Moorman, who attempted to argue that straightforward adjectives like “weak,” “modest” or “strong” do not have “clear definitions”), their position is simply not credible, and even Dr. Moorman acknowledges that 1.2-1.3 is “weaker” than well-established large associations such as smoking/lung cancer.¹³ While the size of the risk does not, in itself, determine causation, this purported low risk estimate is not strong evidence of

¹⁰ Hill 1965.

¹¹ Moorman Rep. at 17.

¹² Singh Dep. 140:19-25 (agreeing that scientific literature does not consider 1.3 a strong association).

¹³ Moorman Dep. 246:24-250:16; *id.* 287:14-289:3 (refusing to define a “weak association” but acknowledging that epidemiology textbooks would not agree that it cannot be defined); *see also id.* 145:4-17 (agreeing that the medical community accepts smoking as a cause of lung cancer but questioning the definition of “medical community” when asked the same about talc and ovarian cancer).

causation. As plaintiffs' expert, Dr. Siemiatycki, wrote in a 1988 article, "[s]mall excess relative risks, even if they are statistically significant, are often interpreted with great caution, if not skepticism."¹⁴

1. Results Of Cohort Studies, Case-Control Studies And Meta-Analyses And Pooled Studies

As fully set forth in the next sections, the prospective epidemiological studies (cohort studies) do not show a statistically significant association between genital talc use and ovarian cancer, while a subset of the population-based case-control studies do show weak statistically significant associations.

a. Results of Cohort Studies

The most recent cohort study, referred to by many as the "Sister Study," enrolled 50,884 women in the U.S. and Puerto Rico beginning in 2003, who had a sister diagnosed with breast cancer, and followed 41,654 of those women for a median 6.5 years.¹⁵ The study identified 154 cases of ovarian cancer and found no association between the use of talc and ovarian cancer – in fact, there was an inverse association that was not statistically significant (HR 0.73 (95% CI: 0.44-1.2)).¹⁶ Of note, this study separately found an association between douching and ovarian cancer, suggesting that douching (which sometimes accompanies perineal talc use) may be a confounding variable that has not sufficiently been accounted for in past studies.¹⁷

A prior cohort study known as the Women's Health Initiative Study followed 61,576 women for a mean of 12.4 years.¹⁸ The study showed no increased risk of ovarian cancer from genital use of talc (HR 1.12 (95% CI: 0.92-1.36)), no increased risk of ovarian cancer from genital talc use for 10 or more years (HR 0.98 (95% CI: 0.75-1.29)) or 20 or more years (HR 1.10 (95% CI: 0.82-1.48)), and no increased risk of ovarian cancer with talc use on sanitary napkins (HR 0.95 (95% CI: 0.76-1.20)) or contraceptive diaphragms (HR 0.92 (95% CI: 0.68-1.23)).¹⁹ The result for combined powder use was a statistically non-significant hazard ratio (HR 1.06 (95% CI: 0.87-1.28)) and an even lower statistically non-significant hazard ratio for combined use for more than ten years (HR 1.02 (95% CI: 0.80-1.30)).²⁰ The authors concluded

¹⁴ Siemiatycki Dep. 328:22-329:2.

¹⁵ Gonzalez NL, O'Brien KM, D'Aloisio AA, Sandler DP, Weinberg CR. Douching, Talc Use, and Risk of Ovarian Cancer. *Epidemiology*. 2016; 27(6): 797–802. ("Gonzalez 2016").

¹⁶ *Id.* at 800-02.

¹⁷ *Id.* at 800.

¹⁸ Houghton SC, Reeves KW, Hankinson SE, et al. Perineal Powder Use and Risk of Ovarian Cancer. *J Natl Cancer Inst*. 2014; 106(9): dju208. ("Houghton 2014").

¹⁹ *Id.*

²⁰ *Id.*

that “perineal powder use does not appear to influence ovarian cancer risk.”²¹

The results of an additional cohort study were published in 2000²² and updated in another publication ten years later.²³ These reports looked at talc use within the Nurses’ Health Study (“NHS”), which was a prospective cohort of 121,700 registered nurses in the United States and was established in 1976.²⁴ The Gertig analysis showed no statistically significant association between perineal talc use (RR 1.09 (95% CI: 0.86-1.37)), use of talc on sanitary napkins (RR 0.89 (95% CI: 0.61-1.28)) and for both uses combined (RR 0.90 (95% CI: 0.59-1.37)).²⁵ It further showed no statistically significant association for various different frequencies of use and no indication that risk increased with more frequent use: less than one per week (RR 1.14 (95% CI: 0.81-1.59)); 1-6 uses per week (RR 0.99 (95% CI: 0.67-1.46)); daily use (RR 1.12 (95% CI: 0.82-1.55)).²⁶ When examining the results by histology, the authors observed a weak statistically significant association for serous invasive (RR 1.40 (95% CI: 1.02-1.91)) but no other types of ovarian cancer.²⁷ They noted that perineal talc use “may modestly increase the risk of invasive serous ovarian cancers” but not for “all serous cancers (including borderline cancers), endometrioid cancers, or mucinous cancers,” and concluded overall that their “results provide little support for any substantial association between perineal talc use and ovarian cancer risk.”²⁸

The 2010 Gates report, which followed up on the Nurses’ Health cohort ten years later, found no statistically significant elevations in risk for talc use for all epithelial ovarian cancers (RR 1.06 (95% CI: 0.89-1.28)), serous invasive ovarian cancers (RR 1.06 (95% CI: 0.84-1.35)), endometrioid ovarian cancers (RR 1.06 (95% CI: 0.66-1.69)), or mucinous ovarian cancers (RR 1.50 (95% CI: 0.84-2.66)).²⁹ The authors concluded that their results for talc exposure “generally are consistent with the existing literature,” i.e., consistent with generally null and/or weakly associated results.³⁰ It is notable too, that with further passage of time, there was no longer an increased association for the serous invasive type of ovarian cancer.

Plaintiffs’ experts’ argument that the Gates report should be disregarded because the participants in the Nurses’ Health Study were only asked about talcum powder use once is

²¹ *Id.*

²² Gertig 2000.

²³ Gates MA, Rosner BA, Hecht JL, Tworoger SS. Risk Factors for Epithelial Ovarian Cancer by Histologic Subtype. *Am J Epidemiol.* 2010; 171(1):45-53, 50 (“Gates 2010”).

²⁴ Gertig 2000.

²⁵ *Id.* at 251.

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.* at 250-51.

²⁹ Gates 2010 at 50.

³⁰ *Id.* at 51. While the 2010 NHS updated the number of women studied, the new participants were not asked about talc, which the authors acknowledged was a “weakness[]” in the study. *Id.* at 52.

unfounded.³¹ Ten additional years of follow-up is valuable data regardless of whether further questioning regarding talc use took place. Moreover, as other studies and plaintiffs' experts themselves have admitted, for women who are ever-users of perineal talcum powder, the mean duration of use is greater than 20 years³² and the vast majority of women who use talcum powder initiate use before age 36.³³ That means that, even though the participants were only asked about their talcum powder use once, the data collected on perineal talcum powder application would have likely reflected chronic, habitual use. For similar reasons, recent meta-analyses by Penninkilampi (relied on heavily by plaintiffs' experts)³⁴ and Taher³⁵ (discussed further below) are of questionable value in light of their omission of the findings reported by Gates, which are derived from a cohort study that found no statistically significant elevations in risk for talc users with respect to epithelial ovarian cancers, serous invasive ovarian cancers, endometrioid ovarian cancers or mucinous ovarian cancers.

Dr. McTiernan's argument that cohort studies are limited because they were "designed to study a large number of outcomes and a wide variety of exposures" in addition to talc and ovarian cancer³⁶ is also wrong. The fact that cohort studies are able to study many variables and outcomes is an illustration of what is valuable and can be achieved with cohort studies. I know of no epidemiologists who believe that the results of all cohort studies should be discounted due to this common design trait; indeed, such a view would conflict with the generally accepted principle that cohort studies can produce a higher level of evidence than case-control studies. Moreover, the typical concern when studies include multiple variables is that they might report false positive associations for particular variables, and no plaintiffs' expert argues that the talc results in cohort studies are false positives (although that argument could be applied to the single positive finding from the Gertig study). Dr. McTiernan relatedly argues that the cohort studies were not "able to accurately measure dose of exposure," but this is equally true of case-control studies, as discussed herein.³⁷

³¹ Singh Dep. 164:16-23; Moorman Dep. 190:4-24; McTiernan Dep. 224:3-7; Smith-Bindman Rep. at 20.

³² Wu AH, Pearce CL, Tseng CC, Pike MC. African Americans and Hispanics Remain at Lower Risk of Ovarian Cancer Than Non-Hispanic Whites after Considering Nongenetic Risk Factors and Oophorectomy Rates. *Cancer Epidemiol Biomarkers Prev.* 2015; 24(7):1094-100 ("Wu 2015").

³³ Singh Dep. 165:2-8; Gates MA, Tworoger SS, Terry KL, et al. Talc use, variants of the GSTM1, GSTT1, and NAT2 genes, and risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers Prev.* 2008; 17(9):2436-2444 ("Gates 2008").

³⁴ Penninkilampi R, Eslick GD. Perineal Talc Use and Ovarian Cancer: A Systematic Review and Meta-Analysis. *Epidemiology.* 2018; 29(1):41-49, 44 ("Penninkilampi 2018"); Smith-Bindman Rep. at 27 ("Penninkilampi provides a comprehensive and high quality review"); McTiernan Rep. at 49 ("[T]he results of this 2018 meta-analysis give strong support for an association between perineal talcum powder product use and risk for ovarian cancer.").

³⁵ Taher MK, Farhat N, Karyakina NA, et al. Systematic Review and Meta-Analysis of the Association Between Perineal Use of Talc and Risk of Ovarian Cancer (2018) (unpublished manuscript) ("Taher 2018").

³⁶ McTiernan Rep. at 46.

³⁷ *Id.*

Plaintiffs' experts also criticize cohort studies for having short follow-up and therefore supposedly not considering the latency period for ovarian cancer.³⁸ In light of the data noted above about mean initiation and duration of talc use, it is reasonable to assume that the date on which study participants were asked about their talcum powder use was not the date of first use and thus not the date that a true latency period would have begun. Moreover, the Women's Health Initiative Study asked about talcum powder use for 20-plus years and found no statistically significant increased risk in ovarian cancer after following those women for 12.4 years (meaning at least 32.4 years of latency were factored in),³⁹ and the Sister Study enrolled women between the ages of 35-74 and followed up after 6 years.⁴⁰ Therefore, it is clear in the case of the WHI study, and quite likely in the case of the Sister Study, that substantial numbers of cohort study participants were using talcum powder for decades, long enough to put any serious concerns about latency to rest.

Any criticism of the studies that rests on the idea of a latency period is highly speculative anyway. For the reasons set out in this report, science has not even established a causal relationship between talc and ovarian cancer of any sort; far less has it established a latency effect or the duration of any such effect. There is simply no scientific basis for the suggestion of a number of plaintiffs' experts that it takes 20 years for some unspecified degree of perineal talc exposure to cause ovarian cancer.

Finally, plaintiffs' experts' criticisms of cohort studies are collectively suspect because they are so extensive when compared to their relatively muted criticisms for case-control studies, which, as I detail in the next sections, have their own significant weaknesses. For example, Dr. Smith-Bindman devotes several pages of her report to lodging numerous criticisms of each study that reported on cohort data; although she mostly spares Gertig 2000 (which happens to be the one cohort study she believes supports her theory), she declares in summary fashion that there is nothing "meaningful" to be gleaned from any of the other cohort studies.⁴¹ Yet she provides no similar analysis of the strengths and weaknesses of the case-control studies, noting in the single paragraph in which she discusses them that her review and abstraction of data from them was done "[w]ithout assessing the[ir] quality."⁴² Similarly, Dr. Moorman did not offer any criticisms or cautions regarding the talc meta-analyses, whereas she pointed out limitations of cohort studies extensively in her report.⁴³ None of the studies is perfect. But plaintiffs' experts' focused attack on cohort studies (as they seek to minimize the significant flaws of the case-control studies) reveals the biased and unscientific nature of their analyses.

³⁸ Singh Rep. at 11, 53; McTiernan Rep. at 47.

³⁹ Houghton 2014 at 2.

⁴⁰ Gonzalez 2016 at 2.

⁴¹ Smith-Bindman Rep. at 20-22.

⁴² *Id.* at 29-30.

⁴³ Moorman Dep. 164:16-18; Moorman Rep. at 24-28.

In summary, none of the cohort studies found a statistically significant association between talc use and ovarian cancer.⁴⁴ The fact that these studies have shown uniformly null results indicates no association between talc use and ovarian cancer.

b. Results of Case-Control Studies

I have identified 25 population-based case-control studies addressing talc use and ovarian cancer.⁴⁵ The following table sets forth these studies' findings with respect to the association between ever/never talc use and ovarian cancer:

⁴⁴ Berge W, Mundt K, Luu H, Boffetta P. Genital Use of Talc and Risk of Ovarian Cancer: A Meta-Analysis. *Eur J Cancer Prev.* 2018; 27(3):248-257, 251 ("Berge 2018") (assigning a statistically insignificant 1.02 relative risk to the cohort studies in aggregate).

⁴⁵ Cramer DW, Welch WR, Scully RE, Wojciechowski CA. Ovarian cancer and talc: a case-control study. *Cancer.* 1982; 50(2):372-376; Harlow BL, Weiss NS. A case-control study of borderline ovarian tumors: the influence of perineal exposure to talc. *Am J Epidemiol.* 1989; 130(2):390-394; Harlow BL, Cramer DW, Bell DA, Welch WR. Perineal exposure to talc and ovarian cancer risk. *Obstet Gynecol.* 1992; 80(1):19-26 ("Harlow 1992"); Chen Y, Wu PC, Lang JH, et al. Risk factors for epithelial ovarian cancer in Beijing, China. *Int J Epidemiol.* 1992; 21(1):23-29; Cramer DW, Xu H. Epidemiologic evidence for uterine growth factors in the pathogenesis of ovarian cancer. *Ann Epidemiol.* 1995; 5(4):310-314; Purdie D, Green A, Bain C, et al. Reproductive and other factors and risk of epithelial ovarian cancer: an Australian case-control study. *Survey of Women's Health Study Group. Int J Cancer.* 1995; 62(6):678-684; Chang S, Risch HA. Perineal Talc Exposure and Risk of Ovarian Carcinoma. *Cancer.* 1997; 79(12):2396-2401 ("Chang & Risch 1997"); Cook LS, Kamb ML, Weiss NS. Perineal Powder Exposure and the Risk of Ovarian Cancer *Am J Epidemiol.* 1997; 145(5):459-465 ("Cook 1997"); Green A, Purdie D, Bain C, et al. Tubal sterilisation, hysterectomy and decreased risk of ovarian cancer. *Survey of Women's Health Study Group. Int J Cancer.* 1997; 71(6):948-951; Godard B, Foulkes WD, Provencher D, et al. Risk factors for familial and sporadic ovarian cancer among French Canadians: a case-control study. *Am J Obstet Gynecol.* 1998; 179(2):403-410; Cramer DW, Liberman RF, Titus-Ernstoff L, et al. Genital Talc Exposure and Risk of Ovarian Cancer. *Int J Cancer.* 1999; 81(3):351-356 ("Cramer 1999"); Ness RB, Grisso JA, Cotteau C, et al. Factors related to inflammation of the ovarian epithelium and risk of ovarian cancer. *Epidemiology.* 2000; 11(2):111-117; Mills PK, Riordan DG, Cress RD, Young HA. Perineal talc exposure and epithelial ovarian cancer risk in the Central Valley of California. *Int J Cancer.* 2004; 112(3):458-464 ("Mills 2004"); Cramer DW, Titus-Ernstoff L, McKolanis JR, et al. Conditions associated with antibodies against the tumor-associated antigen MUC1 and their relationship to risk for ovarian cancer. *Cancer Epidemiol Biomarkers Prev.* 2005; 14(5):1125-1131; Jordan SJ, Green AC, Whiteman DC, Webb PM, Australian Ovarian Cancer Study Group. Risk factors for benign, borderline and invasive mucinous ovarian tumors: epidemiological evidence of a neoplastic continuum? *Gynecol Oncol.* 2007; 107(2):223-230; Gates 2008; Merritt MA, Green AC, Nagle CM, et al. Talcum powder, chronic pelvic inflammation and NSAIDs in relation to risk of epithelial ovarian cancer. *Int J Cancer.* 2008; 122(1):170-176 (2008) ("Merritt 2008"); Moorman PG, Palmieri RT, Akushevich L, et al. Ovarian cancer risk factors in African-American and white women. *Am J Epidemiol.* 2009; 170(5):598-606; Wu AH, Pearce CL, Tseng CC, et al. Markers of inflammation and risk of ovarian cancer in Los Angeles County. *Int J Cancer.* 2009; 124(6):1409-1415 ("Wu 2009"); Rosenblatt KA, Weiss NS, Cushing-Haugen KL. Genital powder exposure and the risk of epithelial ovarian cancer. *Cancer Causes Control.* 2011; 22(5):737-742 ("Rosenblatt 2011"); Kurta ML, Moysich KB, Weissfeld JL, et al. Use of fertility drugs and risk of ovarian cancer: results from a U.S.-based case-control study. *Cancer Epidemiol Biomarkers Prev.* 2012; 21(8):1282-1292; Kotsopoulos J, Terry KL, Poole EM, et al. Ovarian cancer risk factors by tumor dominance, a surrogate for cell of origin. *Int J Cancer.* 2013; 133(3):730-739; Wu 2015; Cramer DW, Vitonis AF, Terry KL, et al. The Association Between Talc Use and Ovarian Cancer: A Retrospective Case-Control Study in Two US States. *Epidemiology.* 2016; 27(3):334-346 ("Cramer 2016"); Schildkraut JM, Abbott SE, Alberg AJ, et al. Association between Body Powder Use and Ovarian Cancer: The African American Cancer Epidemiology Study (AACES). *Cancer Epidemiol Biomarkers Prev.* 2016; 25(10):1411-1417 (2016) ("Schildkraut 2016").

Author, Year	Ever/Never Results
Cramer 1982	RR 1.92 (95% CI: 1.27-2.89)
Harlow & Weiss 1989	RR 1.10 (95% CI: 0.70-2.10)
Harlow 1992	OR 1.50 (95% CI: 1.00-2.10)
Chen 1992	RR 3.90 (95% CI: 0.90-10.6)
Cramer & Xu 1995	OR 1.10 (95% CI: 0.60-2.10)
Purdie 1995	OR 1.27 (95% CI: 1.04-1.54)
Chang & Risch 1997	OR 1.42 (95% CI: 1.08-1.86)
Cook 1997	RR 1.60 (95% CI: 0.90-2.80)
Green 1997	RR 1.30 (95% CI: 1.10-1.60)
Godard 1998	RR 2.49 (95% CI: 0.94-6.58)
Cramer 1999	OR 1.45 (95% CI: 0.97-2.18)
Ness 2000	OR 1.50 (95% CI: 1.10-2.00)
Mills 2004	OR 1.37 (95% CI: 1.02-1.85)
Cramer 2005	OR 1.16 (95% CI: 0.90-1.49)
Jordan 2007	OR 1.00 (95% CI: 0.40-2.10)
Gates 2008	RR 1.36 (95% CI: 1.14-1.63)
Merritt 2008	OR 1.17 (95% CI: 1.01-1.36)
Moorman 2009	Afr. Am.: OR 1.19 (95% CI: 0.68-2.09) Caucasian: OR 1.04 (95% CI: 0.82-1.33)
Wu 2009	RR 1.53 (95% CI: 1.13-2.09)
Rosenblatt 2011	OR 1.27 (95% CI: 0.97-1.66)
Kurta 2012	OR 1.40 (95% CI: 1.16-1.69)
Kotsopoulos 2013 ⁴⁶	RR 1.19 (95% CI: 0.73-1.96)
Wu 2015	OR 1.46 (95% CI: 1.27-1.69)
Cramer 2016	OR 1.33 (95% CI: 1.16-1.52)
Schildkraut 2016	OR 1.44 (95% CI: 1.11-1.86)

I have identified seven hospital-based case-control studies addressing the association between talc use and ovarian cancer.⁴⁷ As set forth in the following table, none of these studies observed a statistically significant association:

⁴⁶ Study looked at all types of genital powder used at least once per week.

⁴⁷ Hartge P, Hoover R, Leshner LP, McGowan L. Talc and Ovarian Cancer. JAMA. 1983; 250(14):1844 (“Hartge 1983”); Whittemore AS, Wu ML, Paffenbarger RS Jr, et al. Personal and environmental characteristics related to epithelial ovarian cancer. II. Exposures to talcum powder, tobacco, alcohol, and coffee. Am J Epidemiol. 1988; 128(6):1228-1240 (“Whittemore 1988”); Booth M, Beral V, Smith P. Risk factors for ovarian cancer: a case-control study. Br J Cancer. 1989; 60(4):592-598 (“Booth 1989”); Rosenblatt KA, et al. Mineral fiber exposure and the development of ovarian cancer. Gynecol Oncol. 1992; 45(1):20-25. (“Rosenblatt 1992”); Tzonou A, Polychronopoulou A, Hsieh CC, et al. Hair dyes, analgesics, tranquilizers and perineal talc application as risk factors for ovarian cancer. Int J Cancer. 1993; 55(3):408-410 (“Tzonou 1993”); Hartge P, Stewart P. Occupation and ovarian cancer: a case-control study in the Washington, DC, metropolitan area, 1978-1981. J Occup Med. 1994; 36(8):924-927 (“Hartge & Stewart 1994”); Wong C, Hempling RE, Piver MS, et al. Perineal talc exposure and subsequent epithelial ovarian cancer: a case-control study. Obstet Gynecol. 1999; 93(3):372-376. (“Wong 1999”).

Author, Year	Ever/Never Results
Hartge 1983	RR 0.70 (95% CI: 0.40-1.10)
Whittemore 1988	RR 1.45 (95% CI: 0.81-2.60)
Booth 1989	RR 1.30 (95% CI: 0.80-1.90)
Rosenblatt 1992	OR 1.70 (95% CI: 0.70-3.90)
Tzonou 1993	RR 1.05 (95% CI: 0.28-3.98)
Hartge & Stewart 1994	RR 0.3 (95% CI: 0.1-1.4) to RR 0.5 (95% CI: 0.2-1.5) ⁴⁸
Wong 1999	OR 1.00 (95% CI: 0.80-1.30)

In summary, 11 of the 25 population-based case-control studies do not show a statistically significant association, and none of the hospital-based studies does. Notably, the authors of the case-control studies have generally cautioned that even when they found a statistically significant elevated risk, their results do not establish causation, even in combination with the results of other studies.⁴⁹

c. Results of Meta-analyses and Pooled Studies

Meta-analyses and pooled studies, which use statistical methods to pool results from different studies, have also been performed on the body of talc-ovarian cancer epidemiological literature. These studies have calculated an overall odds ratio of approximately 1.3,⁵⁰ which they have characterized as a “relatively weak odds ratio[]” that “can be attributed to bias in” case-control studies.⁵¹ As some of these studies have stated, the epidemiological data are “insufficient

⁴⁸ This study did not provide a value for ever/never use; range reflects values across three strata of use durations.

⁴⁹ Cramer DW, Welch WR, Berkowitz RS, Godleski JJ, Presence of talc in pelvic lymph nodes of a woman with ovarian cancer and long-term genital exposure to cosmetic talc. *Obstet Gynecol.* 2007; 110(2 Pt 2):498-501, 500 (case study stating that “[w]e are not claiming that a causal relationship between ovarian cancer and talc use is proven for this case or in general”).

⁵⁰ Berge 2018 at 251 (RR 1.22 (95% CI: 1.13-1.30)); Terry KL, Karageorgi S, Shvetsov YB, et al. Genital Powder Use and Risk of Ovarian Cancer: A Pooled Analysis of 8,525 Cases and 9,859 Controls. *Cancer Prev Res (Phila).* 2013; 6(8):811-821 (“Terry 2013”) (OR 1.24 (95% CI: 1.15-1.33)); Langseth 2008 (OR 1.40 (95% CI: 1.29-1.52)).

⁵¹ Berge 2018 at 253; Cramer DW, Liberman RF, Titus-Ernstoff L, et al. Genital Talc Exposure and Risk of Ovarian Cancer. *Int J Cancer.* 1999; 81(3):351-356, 354 (“Cramer 1999”); Huncharek M, Geschwind JF, Kupelnick B. Perineal application of cosmetic talc and risk of invasive epithelial ovarian cancer: a meta-analysis of 11,933 subjects from sixteen observational studies. *Anticancer Res.* 2003; 23(2C):1955-1960 (2003 meta-analysis explaining that “[s]election bias and uncontrolled confounding may account for the positive associations seen in prior epidemiological studies”); Rothman KJ, Pastides H, Samet J. Interpretation of Epidemiologic Studies on Talc and Ovarian Cancer 4 (Nov. 28, 2000), <https://ntp.niehs.nih.gov/ntp/newhomeroc/roc12/mcwen-07-14-04.pdf> (“Recall bias can readily introduce enough bias to produce the modestly-sized overall effect (RR = 1.3) that emerges from these studies.”). I am aware of Dr. Zambelli-Weiner’s criticisms of the Huncharek studies, but Dr. Zambelli-Weiner does not claim that the studies understated the association between genital talc use and ovarian cancer; indeed, her efforts to replicate the dose-response calculations in Huncharek (2003) similarly failed to show a dose-response relationship.

to establish a causal association between perineal use of talc and ovarian cancer risk” and “not support[ive of] a causal interpretation of the association.”⁵²

Plaintiffs’ experts rely on a 2018 study by Penninkilampi and Eslick, which conducted a literature review of studies addressing talcum powder use and ovarian cancer and performed a meta-analysis that “revealed an increased risk of ovarian cancer associated with any perineal use of talc (. . . OR = 1.31; 95% CI = 1.24, 1.39).”⁵³ Although the finding was statistically significant, it remains low, with a 1.31 odds ratio that falls within the range of prior studies, adding little to the existing literature on this question. Indeed, the authors acknowledged that several meta-analyses had been conducted by 2018, but sought to justify the need for another in light of ongoing litigation, contending that “the association between talc use and ovarian cancer [has taken] on considerable relevance” because “Johnson & Johnson has recently had damages levied to the total of US\$717 million against [it] in five law suits” and because “producers of talcum powder products continue to sell these products without any warning labels regarding perineal use and potential associations with ovarian cancer,” leading the authors to conclude that “there is a need for clarification, to allow women to be adequately informed of the risk of use of these products, possibly preventing future harm.”⁵⁴ This is an unusual statement in a scientific article and especially odd in an article that is ostensibly premised on the idea that existing science has not concretely defined the risk that the authors are suggesting should be warned against. The study is also puzzling in that its stated purpose is to update prior meta-analyses – in particular, because “the results of a number of large case-control studies and two cohort studies” had been reported since the last meta-analysis was published⁵⁵ – and yet the meta-analyses wholly excluded consideration of the Gates report (the NHS follow-up), another cohort study published during the same period. Ultimately, notwithstanding the authors’ expressed concerns about warning women and updating the research, their conclusions echo those of prior studies, acknowledging in some detail the possibility that recall bias drove the results in the case-control studies⁵⁶ and concluding that while the authors believe their results are “suggestive of a causal association,” it remains the case that “[a]dditional epidemiologic evidence from prospective studies with attention to effects within ovarian cancer subtype is warranted” and that “it is important that research into this association continue.”⁵⁷

I also note that plaintiffs’ experts Dr. Smith-Bindman and Dr. Siemiatycki decided to conduct their own meta-analyses for purposes of their reports. I did not attempt such an undertaking because there is no need; there have been a number of recent meta-analyses in this area, and not enough new recent studies to justify running the same meta-analysis one more time

⁵² Langseth 2008 at 359; Berge 2018 at 256.

⁵³ Penninkilampi 2018 at 44.

⁵⁴ *Id.* at 42.

⁵⁵ *Id.*

⁵⁶ *Id.* at 47.

⁵⁷ *Id.* at 48.

(indeed, Dr. Siemiatycki acknowledges that the cumulative 1.28 relative risk his analysis generated is on par with those of the recent published meta-analyses).⁵⁸

Dr. Smith-Bindman purports to have conducted her meta-analysis in an effort to specifically assess whether “regular” talc use causes ovarian cancer and serous invasive ovarian cancer in particular.⁵⁹ According to Dr. Smith-Bindman, a “narrow[er]” meta-analysis would offer the “most meaningful and consistent results,” ostensibly by reducing variation between the included studies as to “relevant factors such as age or race/ethnicity.”⁶⁰ But she does not cite any reference in support of her “less is more” theory; nor does she identify any generally accepted criticisms of existing talc meta-analytic work that would justify her narrower approach. She also offers no basis for concluding that the results of her study are somehow more reliable than the studies that have previously been done on the same body of literature, and which have been published after peer review. And indeed they are not, due to at least the following significant methodological deficiencies:

Dr. Smith-Bindman states that she chose to focus on serous invasive ovarian cancer because it was the only subtype “for which most individual research studies accumulated sufficient cases for valid statistical analysis,” but she provides no analysis or data to support this claim.⁶¹ Her decision to focus on serous invasive ovarian cancer (the only subtype that previously has been associated with an increased risk from talc in any of the cohort studies) illustrates a systematic exclusion of data that do not support her theory.

Her concession that her measure of “regular” talc use was “subjective[]” is an understatement.⁶² She defines “regular use” “ideally as daily or at least more than 3 uses per week,” but she also “accepted studies that defined use as ‘regular’ where the description made it clear that this was regular use.”⁶³ For some studies that reported “regular” use but sub-grouped that categorization, she only “included data for women in the highest use category,” and only if that group “was large enough to be meaningful.”⁶⁴ And when studies “asked about ever use but defined use and stratified results by use,” she “included any data that may have reflected daily use.”⁶⁵ Far too many questions arise from these vague and subjective criteria. For example, why did Dr. Smith-Bindman arbitrarily choose three uses per week as the lower threshold for regular use? Notably, this cut-off excluded the Gates study, which included data on women who used talc more

⁵⁸ Siemiatycki Rep. at 41.

⁵⁹ *Id.* at 31.

⁶⁰ *Id.* at 30.

⁶¹ *Id.* at 32.

⁶² *Id.* at 34 (“I tried to be consistent in defining exposure, but this factor was subjectively determined by the individual studies.”); *see* Smith-Bindman Dep. Vol. II 272:3-273:3 (Smith-Bindman “tried to approximate regular use” and has not validated her metric).

⁶³ Smith-Bindman Rep. at 32.

⁶⁴ *Id.*

⁶⁵ *Id.*

than once per week (as explained below, including Gates in the meta-analysis would have lowered the odds ratio Dr. Smith-Bindman calculated for serous invasive). What criteria governed her determination of whether a study's description "made it clear" that it really addressed regular use? Why did she only use the highest use category when studies reported multiple categories of regular use, and what made such a group "large enough to be meaningful"? How did she determine "which data may have reflected daily use"? Although Dr. Smith-Bindman speculated at her deposition that other epidemiologists could repeat her analysis using her methodology,⁶⁶ the lack of a clear protocol and the need to reproduce seemingly arbitrary decisions in her assessment of "regular" talc use would make that very difficult, if not impossible. And importantly, whether a study reported on "regular" talc use appears to be the sole criterion Dr. Smith-Bindman employed in choosing studies for her review.

Dr. Smith-Bindman excluded studies that examined talc use on sanitary napkins, diaphragms or condoms, claiming (without any supporting data) that perineal use is "the most common exposure type and is likely to reflect the most consistent exposure."⁶⁷ Notably, if the talc migration theory Dr. Smith-Bindman endorses is correct, data regarding talc use on condoms and diaphragms should be especially valuable, since such use introduces talc directly into the vagina. But studies examining such use have not reported an association with ovarian cancer, and her decision to exclude them again illustrates that she systematically avoided data that did not support her desired result.

Even after designing a study selection methodology that enabled her to cherry-pick studies that supported finding an association, Dr. Smith-Bindman omitted Rosenblatt 2011 after initially selecting it.⁶⁸ That study reported negative associations between talc use and both invasive serous ovarian cancer and ovarian cancer overall for its two highest use categories.⁶⁹ At her deposition, Dr. Smith-Bindman speculated that she omitted this study because doing so did not make a difference in her results.⁷⁰ That is both an odd reason to exclude a study (all other things being equal, a more robust data set is obviously preferable) and objectively wrong, since her underlying data show that omitting the Rosenblatt study increased her odds ratio for frequent use and serous invasive from 1.38 to 1.52 and for frequent use and all ovarian cancer from 1.32 to 1.43.⁷¹ In other words, if Dr. Smith-Bindman had not excluded Rosenblatt 2011 from her final results, she would

⁶⁶ Smith-Bindman Dep. Vol. II 357:1-15; Smith-Bindman Dep. Vol. I 102:21-104:18; *see, e.g.*, Smith-Bindman Dep. Vol. I 197:19-198:6 (Smith-Bindman has no written protocol setting forth the myriad assumptions she and her colleague made when abstracting data).

⁶⁷ Smith-Bindman Rep. at 32-33.

⁶⁸ *Id.* at 33-34.

⁶⁹ Rosenblatt 2011 at Table 2 (reporting point estimates of 0.78 and 0.87 for invasive tumors and all tumors in women with between 4,800 and 9,999 lifetime applications; and 0.84 and 0.87, respectively, for women with more than 10,000 lifetime applications).

⁷⁰ Smith-Bindman Dep. Vol. I 177:20-180:13.

⁷¹ TalcDataResults-janehall.xlsx (compare "All papers" tab with "Excluding Rosenblatt" tab).

not have been able to opine that regular talc use is associated with a 50 percent increase in the risk of serous invasive ovarian cancer.⁷²

The pool of studies on which she relies for her assessment of serous invasive ovarian cancer is very small – consisting of only four reports and far fewer cases overall than the broader pool of ovarian cancer studies, making the dataset less robust. Moreover, while Dr. Smith-Bindman includes the Gertig study as one of the four in her consideration of serous ovarian cancer risk, she omits the Gates study,⁷³ which, as noted above, updated the findings of the NHS on which Gertig had reported and concluded after ten more years of study that there was no association between talc use and serous ovarian cancer specifically (RR 1.06 (95% CI: 0.84-1.35)).⁷⁴ Had Gates been considered, Dr. Smith-Bindman's reported overall odds ratio of 1.52 for serous ovarian cancer would presumably have been much lower.

As noted above, Dr. Smith-Bindman admittedly made no effort to assess the quality of the case-control studies that comprise 90 percent of her meta-analysis.⁷⁵ As she confirmed at her deposition, this included no effort to assess whether the studies she selected adequately controlled for bias and confounding.⁷⁶

Dr. Smith-Bindman admittedly abstracted inaccurate data from the studies she considered in her review.⁷⁷ Indeed, none of the confidence interval data she reports for the ten studies she includes in Figures 2 and 3 of her report match what was reported in the studies themselves.⁷⁸ This is surprising since Dr. Smith-Bindman acknowledges that data abstraction is an extremely important step for a meta-analysis and that having inaccurate

⁷² See Smith-Bindman Rep. at 34.

⁷³ *Id.*

⁷⁴ Gates 2010 at 50.

⁷⁵ Smith-Bindman Rep. at 29.

⁷⁶ Smith-Bindman Dep. Vol. II 311:18-312:24; *see id.* 284:7-15 (agreeing that bias in underlying studies does not disappear when they are combined in a meta-analysis).

⁷⁷ Smith-Bindman Dep. Vol. I 105:14-21.

⁷⁸ *Id.* 182:13-183:24. Compare Smith-Bindman Rep. at 33 fig. 2, with Booth 1989 at 596 (Smith-Bindman (0.75-1.85) vs. study (0.8-1.9)), and Chang & Risch 1997 at 2399 (Smith-Bindman (0.51-1.39) vs. study (0.61-1.49)), and Cook 1997 at 462 (Smith-Bindman (0.55-3.05) vs. study (1.2-2.9)), and Cramer 2016 at 335 (Smith-Bindman (0.97-2.01) vs. study (1.06-2.10)), and Gertig 2000 at 250 (Smith-Bindman (0.76-1.48) vs. study (0.82-1.55)), and Harlow 1992 at 19 (Smith-Bindman (0.85-2.75) vs. study (1.1-3.0)), and Mills 2004 at 460 (Smith-Bindman (0.93-2.55) vs. study (1.14-2.64)), and Schildkraut 2016 at 1413 (Smith-Bindman (1.18-2.24) vs. study (1.26-2.33)), and Whittemore 1988 at 1231 (Smith-Bindman (0.81-2.09) vs. study (0.81-2.60)), and Wu 2009 at 1409 (Smith-Bindman (1.14-3.02) vs. study (1.34-3.23)). Compare Smith-Bindman Rep. at 34 fig. 3, with Chang & Risch 1997 at 2399 (Smith-Bindman (1.07-1.96) vs. study (1.13-2.02)), and Cook 1997 at 462 (Smith-Bindman (0.55-3.05) vs. study (1.2-2.9)), and Cramer 2016 at 342 (Smith-Bindman (1.08-2.00) vs. study (1.15-2.07)), and Gertig 2000 at 250 (Smith-Bindman (0.86-2.12) vs. study (0.98-2.26)).

data can compromise a meta-analysis.⁷⁹ Dr. Smith-Bindman also admits that she likely double-counted patients in her data, despite acknowledging that this should be avoided.⁸⁰

In short, Dr. Smith-Bindman's meta-analysis is arbitrary, error-laden and designed to systematically exclude data that do not support the theory that talc use causes ovarian cancer. These methods are unreliable. Based on her meta-analysis, Dr. Smith-Bindman concluded that she does "not have *any uncertainty* that regular exposure to talc powder products" increases the risk of ovarian cancer;⁸¹ yet, it is difficult to conceive how use of such a methodology would not introduce *substantial uncertainty* into a meta-analysis, as well as any interpretation of its results.

2. Bias

Bias is a particularly important issue when analyzing whether perineal exposure to talcum powder causes ovarian cancer because, as set forth above, the reported risks are very small. The reporting of small risks suggests these studies are susceptible to biases.⁸²

Additionally, case-control studies are particularly susceptible to bias (although I agree with Dr. McTiernan that hospital-based studies may be less distorted by recall bias than population-based studies because the former feature both ill cases and ill controls).⁸³ In most of the case-control studies pertaining to perineal talcum powder use and ovarian cancer, the authors discuss the potential for bias, including recall bias. However, only one study examined the issue directly, and it found striking and clear evidence of the impact of recall bias on the study results.

In the case-control study reported by Schildkraut et. al., the authors (including Dr. Moorman) considered that "the possibility of differential misclassification exists in a case-control study such as AACES, especially due to the heightened awareness of the exposure as a result of" well-publicized litigation.⁸⁴ The investigators examined their finding based on whether the study subjects were interviewed before 2014 versus 2014 onward. Among those interviewed before 2014, the reported use of body powder on the genitals was nearly the same for cases and controls (36.5 and 34.0%, respectively). But from 2014 onward, the reported use among cases was markedly higher (51.5%), while it stayed the same in controls (34.4%). This striking and abrupt change in reporting clearly demonstrates the major impact of recall bias, and that plaintiffs' experts are wrong to label recall bias in case-control studies "theoretical."⁸⁵ But it also calls into question earlier results because – contrary to Dr. Moorman's claim that "the vast

⁷⁹ Smith-Bindman Dep. Vol. I 104:22-105:13, 106:6-13; Smith-Bindman Dep. Vol. II 282:16-283:3.

⁸⁰ Smith-Bindman Rep. at 34; Smith-Bindman Dep. Vol. II 344:9-345:3.

⁸¹ Smith-Bindman Rep. at 4 (emphasis added).

⁸² Moorman Dep. 251:2-7 ("I think that with a smaller association, there is more concern that it could be due to bias from various reasons.").

⁸³ McTiernan Rep. at 24

⁸⁴ Schildkraut 2016 at 1416.

⁸⁵ McTiernan Rep. at 20; Moorman Rep. at 23.

majority of studies” were not affected by this issue⁸⁶ – the question of talc and ovarian cancer did not emerge for the first time in 2014, and earlier studies could well have been affected by a more modest but nonetheless significant recall bias. Clearly, media reporting about talc and ovarian cancer did not begin in 2014; rather, there are multiple news reports between 1982 and 2013 (**See Appendix A: Sample Of Pre-2014 News Articles Addressing Posited Link Between Talc Use And Ovarian Cancer for a list of examples**). Women with ovarian cancer in that era could easily have been influenced in their recall of talcum powder use, which would potentially amplify recall bias in pre-2014 studies as well.

Dr. Moorman further argues that “empirical evidence” shows that recall bias in case-control studies is only a theoretical concern, citing a study by Lanza et al. that found that case-control and cohort studies reached similar results regarding certain therapeutic interventions.⁸⁷ But the Lanza findings (which had nothing to do with talc) are obviously not applicable to the situation here, where the case-control and cohort studies at issue have been highly heterogeneous.⁸⁸

Other study authors have recognized the problem of bias in their studies as well. For example, a 2017 pooled study of 12 case-control studies addressing ovarian cancer risk factors in four ethnic groups found a statistically significant elevated risk for talc use among two of the four ethnic groups (Non-Hispanic White (OR 1.30 (95% CI: 1.20–1.41)) and Black (OR 1.62 (95% CI: 1.32–2.00)) and no statistically significant elevated risk for the other two groups (Hispanic (OR 1.41 (95% CI: 0.93–2.13)) and Asian/Pacific Islander (OR 1.02 (95% CI: 0.61–1.70))).⁸⁹ The authors characterized the differences across groups as “[s]tudy heterogeneity” and cautioned: “A concern with self-reported data is recall bias, especially for characteristics that are difficult to report with accuracy, require subjective summarization or can be influenced by the investigator, media or similar factors. Such problematic characteristics may include body powder exposure[.]”⁹⁰

3. Confounding

Similarly, confounding factors may have affected the studies that found a small estimated risk pertaining to perineal exposure to talcum powder and ovarian cancer. This issue is especially concerning when it comes to ovarian cancer risk because, generally, scientists do not know the cause of ovarian cancer.⁹¹ Thus, even studies that attempt to account for known confounders (such as familial or genetic risk) likely do not account for most of the risks – known or unknown.

⁸⁶ Moorman Rep. at 23.

⁸⁷ Moorman Rep. at 23; Moorman Dep. 227:11-23.

⁸⁸ See Moorman Dep. 227:24-232:15.

⁸⁹ Peres LC, Risch H, Terry KL, et al. Racial/ethnic differences in the epidemiology of ovarian cancer: a pooled analysis of 12 case-control studies. *Int J Epidemiol.* 2018; 47(2):460-472.

⁹⁰ *Id.* at 8-9.

⁹¹ Siemiatycki Dep. 173:6-9 (agreeing that “all of the factors that might make someone susceptible to developing ovarian cancer are not currently known”).

The Sister Study⁹² provides insight into one potential source of confounding in prior studies. In that study, the investigators accounted for douching, an exposure not considered in nearly all other studies. The authors were interested in douching because of concerns that it could “introduce particles and toxicants in the upper reproductive tract and increase the risk of cancers and infections.” They cited evidence that douching products contain phthalates that “could influence ovarian cancer risk through hormone disruption.” The study found that douching was a risk factor for ovarian cancer (HR 1.8 (1.2-2.8)), while talc use was not (HR 0.73 (0.44-1.2)). Douching, with or without concurrent talc use, had similar risk (HR 1.8 and 1.9, respectively). The investigators noted that the practice of douching and talc use are correlated and that “if douching is a risk factor for ovarian cancer, some of the earlier reports on talc could have been subject to confounding bias.” The same study also showed that douche users are different from non-users, with users more likely being Non-Hispanic Black, of lower educational attainment and/or obese. These systematic differences highlight the complexity of understanding the potential effect of a non-random feminine hygiene practice and judging causation when estimated risks are otherwise so small.

The finding in Gonzalez that the douche users had lower educational attainment suggests that socioeconomic status may be another important confounder. Indeed, in another study by Alberg et al. the investigators found that higher educational attainment may be protective against developing ovarian cancer (or in other words, low educational attainment is associated with higher risk of developing ovarian cancer).⁹³ The authors noted that if socioeconomic status is truly protective, the reasons for the relationship still need to be identified.⁹⁴ They suggested that differences in diet and exercise could be related to risk, which overall means that assessing confounding in ovarian cancer studies is important, complex and not yet fully developed in research.⁹⁵ What is important in assessing the epidemiologic studies of talc and ovarian cancer is that, as Dr. Smith-Bindman acknowledges, the studies did not use a uniform approach to assessing confounders, with, for example, nearly all not adjusting for douching and many not accounting for education or socioeconomic status.⁹⁶ Accordingly, Dr. McTiernan’s argument that confounding is unlikely because studies have reported small differences between adjusted and crude results is overly simplistic (and in any event ignores that studies cannot adjust for unknown confounders).⁹⁷

4. Other Considerations

It is important to recognize that the strength of an association is not the same as the importance of the association. The importance of an association is based on the judgment of

⁹² Gonzalez 2016.

⁹³ Alberg AJ, Moorman PG, Crankshaw S, et al. Socioeconomic Status in Relation to the Risk of Ovarian Cancer in African-American Women: A Population-Based Case-Control Study. *Am J Epidemiol.* 2016; 184(4):274-283.

⁹⁴ *Id.* at 282.

⁹⁵ *Id.*

⁹⁶ Smith-Bindman Dep. Vol. II 307:21-308:24.

⁹⁷ McTiernan Rep. at 24; McTiernan Dep. 176:17-177:23.

those using the information. A new medication that reduces death from heart attacks by 2% may be judged to be very important, and if that drug causes itching in 30% of users, that finding may be judged less important. An effect that is judged to be important is not evidence of causation, however.

In this matter, some of plaintiffs' experts have provided confusing opinions about strength of association. While the strength of association between talcum powder use and ovarian cancer is indisputably small, the experts have nevertheless found it to be "strong" by discussing their judgments about the potential importance of the findings and also by bringing in other arguments, such as statistical significance. For example, Dr. Smith-Bindman states:

"It is frequently argued that the larger an apparent association, the more likely the association is to be real (causal) and important for epidemiological assessment. This would suggest that an OR of 2.0 is more likely to indicate causality and importance than an OR of 1.5. While this is often argued, I do not believe this is necessarily the case. If a risk factor increases the risk of disease by 50%, and the exposure is common, it will have far greater impact on a number of people, in comparison to a rare exposure that has a higher associated OR. A larger association between exposure and disease may be easier to identify, but I do not believe it is more likely to indicate causality or importance."⁹⁸

Dr. Smith-Bindman is conflating the distinct issues of causation and importance in arguing that "the data supporting the causality of talcum powder products exposure for ovarian cancer is extremely strong."⁹⁹ She goes on to calculate the number of ovarian cancers she believes are caused by talcum powder products and uses this calculated number of cancers to support her statement that "this Bradford Hill Factor of the Strength of the association is important and met."¹⁰⁰ In other words, Dr. Smith-Bindman opines that because, according to her calculations, a large percentage of ovarian cancer is caused by talcum powder, the association is "strong." This statement is misleading and circular because Dr. Smith-Bindman is using the "importance" of the finding, which is only important if true (i.e., causal), to support the judgment that the very small association is causal. One needs to first determine if an association is causal, and only then, if it is causal, decide on its importance.

Other plaintiffs' experts make similar conflated arguments. Dr. Blair Smith uses the potential importance of the finding in her assessment of the strength of association when she states that "there is no set magnitude or threshold for ascribing causality. I would maintain that any practice or element that increases the risk of ovarian cancer by ANY consistent percentage is significant."¹⁰¹ Dr. Moorman also states that it is "critical to consider the prevalence of the exposure" in assessing strength of association and "how many cases of disease could be

⁹⁸ Smith-Bindman Rep. at 36.

⁹⁹ *Id.* at 37.

¹⁰⁰ *Id.* at 38.

¹⁰¹ Blair Smith Rep. at 19.

attributable to this exposure.”¹⁰² Likewise, Dr. McTiernan, although admitting the risks are approximately 22-31% (equivalent to RR ~1.2-1.3), expressed the opinion that the association is strong because “given the high prevalence of use of talcum powder products” in this population, these levels of risk present a clinically significant public health concern.”¹⁰³ Thus, Drs. Blair Smith and McTiernan are using the concept of importance to justify the strength of a very small numerical risk. Furthermore, Dr. McTiernan’s opinion about the strength of association is confusing for the additional reason that she folds in other criteria such as consistency of findings, which should be assessed separately. Dr. McTiernan’s conflation of many different concepts makes her Bradford Hill analysis unreliable.

Plaintiffs’ experts also cite to examples of “established carcinogens” with similar estimates of strength of association – like passive smoke exposure and lung cancer, or hormone replacement therapy and breast cancer – to conclude that the association between talc and ovarian cancer is strong enough to be causative.¹⁰⁴ Although it is true that the associations are numerically similar, it is improper to conclude that any association of the same size is causal. After all, for those other exposures, the fact of a weak association may have been overcome by strong evidence that the other Bradford Hill criteria were met. And, as Dr. Moorman concedes, there are also examples of numerically similar associations that have not been established as causal.¹⁰⁵ Additionally, causation for certain of these other examples was based on data from randomized trials, which are the strongest evidence of a causal relationship. For example, the clinical trials pertaining to hormone therapy and breast cancer randomly assigned patients to treatment and control groups, rendering a high likelihood that any association that is observed is due to the exposure, as opposed to bias or confounders. In other words, the causal relationship between hormone therapy and breast cancer is based on better data, not on the finding of a small association.¹⁰⁶

Additionally, plaintiffs’ experts’ heavy reliance – and in the case of Dr. McTiernan, exclusive reliance¹⁰⁷ – on meta-analyses and pooled analyses to demonstrate strength of association is flawed in many respects. First, as plaintiffs’ experts have repeatedly acknowledged, the meta-analyses do not eliminate the bias inherent in the underlying studies.¹⁰⁸ And although plaintiffs’ experts focus on newer studies,¹⁰⁹ Dr. Siemiatycki admits that the

¹⁰² Moorman Dep. 261:1-262:1.

¹⁰³ McTiernan Rep. at 9.

¹⁰⁴ Singh Rep. at 17; Moorman Rep. at 12; Moorman Dep. 245:10-16; Siemiatycki Dep. 148:8-19.

¹⁰⁵ Moorman Dep. 255:12-25 (“I acknowledge that – of course, that there are reports of exposures that have reported relative risk in this range, and it could either be something that was associated with another risk factor and it was not the causal factor or the level of evidence was not adequate.”).

¹⁰⁶ Chlebowski RT, Hendrix SL, Langer RD, et al. Influence of estrogen plus progestin on breast cancer and mammography in healthy postmenopausal women: the Women’s Health Initiative Randomized Trial. JAMA. 2003; 289(24):3243-3253.

¹⁰⁷ McTiernan Rep. at 63; McTiernan Dep. 243:7-14.

¹⁰⁸ McTiernan Dep. 244:9-13; Moorman Dep. 159:8-160:18.

¹⁰⁹ McTiernan Dep. 282:2-4.

relative risks have gone down as more data has been collected over the years. For example, the 1.28 odds ratio provided by Dr. Siemiatycki in his 2018 meta-analysis is lower than the 1.35 relative risk published in the 2008 Langseth article.¹¹⁰ And Dr. Siemiatycki acknowledged that the Berge 2018 authors noted a downward trend in the risk assessment over time.¹¹¹

Finally, Dr. Smith-Bindman reports finding a slightly higher odds ratio of 1.52 by focusing on the particular histologic subtype of serous ovarian cancer.¹¹² But this alternative approach to the issue of strength does not materially affect the analysis. An odds ratio of 1.52 remains well below 2.0 and would still be considered a weak association. The studies offering odds ratios for serous ovarian cancer, like the broader pool of studies, contain a mix of findings, with some reporting statistically significant findings and others not.¹¹³ And Dr. Smith-Bindman's methodology to reach the 1.52 odds ratio was deficient for the numerous reasons discussed above.

Based on the foregoing, it is my opinion that the association between perineal talcum powder exposure and ovarian cancer is weak and likely impacted by bias, confounding and/or chance. Moreover, plaintiffs' experts' attempts to explain away these problems and cast the science as standing for essentially the opposite proposition – that the epidemiology establishes a strong or conclusive association – strongly suggest that they are engaged in advocacy rather than science.

B. Epidemiologic Studies Are Inconsistent.

As set forth above, the prospective epidemiologic studies (cohort studies) do not show a statistically significant association, while only a subset of the population-based case-control studies does.¹¹⁴ This disparity reflects inconsistent results across different types of studies, undermining the conclusion that cosmetic talc use causes ovarian cancer. The fact that none of the cohort studies found a statistically significant association between talc use and ovarian cancer is critical in this regard,¹¹⁵ because it calls into doubt even the modest association in some of the population-based case-control studies.

Other inconsistencies exist in the literature as well, including some that overlap with the concepts of coherence and plausibility.¹¹⁶ Evaluating an association with the use of talc-dusted

¹¹⁰ Siemiatycki Dep. 149:14-150:3.

¹¹¹ Siemiatycki Dep. 206:21-207:19.

¹¹² Smith-Bindman Rep. at 34.

¹¹³ *Id.* at 34 fig. 3 (citing four studies, one of which (Cook 1997) reported a statistically insignificant result, and two of which have confidence intervals that are only barely above 1.0).

¹¹⁴ As just explained, this disparity holds for the subtype of serous ovarian cancer as well, as to which the Gates study reported no statistically significant association.

¹¹⁵ Berge 2018 at 251.

¹¹⁶ Fiume MM, Boyer I, Bergfeld WF, et al. Safety Assessment of Talc as Used in Cosmetics. *Int J Toxicol.* 2015; 34(1 Suppl):66S-129S, 119S ("Fiume 2015"); Hartge 1983; Muscat JE, Huncharek MS. Perineal talc use and

diaphragms and condoms has been deemed “the most valid method for testing the carcinogenic potential of talc” because “[b]y definition, the female reproductive tract is exposed to talc containing powders introduced by diaphragms, whereas an exposure route based on perineal dusting requires unproven assumptions about vaginal exposure.”¹¹⁷ Studies pertaining to use of talcum powder on diaphragms and condoms have shown a consistent lack of risk. It is illogical that talcum powder applied to the outside of the genital tract can cause ovarian cancer, while talcum powder applied inside the genital tract would not. Additionally, assertions by plaintiffs’ experts that these studies are “obsolete” due to a “lower methodological quality”¹¹⁸ are merely unfounded assertions.

Some of plaintiffs’ experts still argue that the data on the association between genital talc use and ovarian cancer are highly consistent, but their explanations fail.

For example, Dr. McTiernan states that “[a]cross the case-control and cohort studies, the association between use of talcum powder products and risk of ovarian cancer was highly consistent.”¹¹⁹ This statement is simply not true: while some of the case-control studies have shown a small positive risk, the cohort studies have uniformly failed to demonstrate a risk, as Dr. McTiernan admits.¹²⁰ She states further that because the cohort studies “were not well designed to determine true risk for ovarian cancer and perineal talc use their results as a group do not negate the significant case-control findings.”¹²¹ But her criticisms of cohort studies are misplaced, as previously discussed. In any event, her argument assumes that the results of some studies are not consistent, or else there would be no reason for Dr. McTiernan to find fault with the cohort study designs in order to explain why their results do not negate the findings from other studies. Furthermore, Dr. McTiernan completely ignores the fact that within the case-control studies, there is evidence of inconsistency based on the type of control group. The different findings in the case-control studies by type of control group is further evidence of inconsistency.

Drs. Singh and Moorman purport to find consistency because “[t]he meta-analysis of case-control studies has consistently shown a statistically significant increased risk” and “the meta-analysis of cohort studies has also shown an excess risk, [] which failed to reach statistical significance.”¹²² This consistency analysis is faulty for two reasons. First, since meta-analyses

ovarian cancer: a critical review. *Eur J Cancer Prev.* 2008; 17(2):139-146, 144-145 (2008) (“Muscat & Huncharek 2008”).

¹¹⁷ Muscat & Huncharek 2008.

¹¹⁸ Singh Rep. at 17, 26-27.

¹¹⁹ McTiernan Rep. at 64.

¹²⁰ McTiernan Dep. 200:25-201:10 (“So yes, there was heterogeneity between the case-control and cohort studies”), 202:17-203:1 (“I agree that the cohort studies have lower relative risks than do the case-control studies, yes.”).

¹²¹ McTiernan Rep. at 64.

¹²² Singh Rep. at 17; Singh Dep. 146:25-147:5 (stating “[t]he cohort studies show . . . increased risk, which is in the same direction as the case-control studies”); Moorman Dep. 262:20-264:13 (explaining that “both the Houghton study and the Nurses’ Health Study . . . are consistent in terms of the direction of the effect”).

analyze overlapping sets of individual studies, it is not surprising that meta-analyses yield consistent results. For this reason, consistency as determined by the meta-analyses' estimates is not supportive of Bradford Hill's consistency of association criterion. Second, as Drs. Singh and Moorman admit, the purported "excess risk" or "direction of the effect" shown in the meta-analyses of cohort studies does not amount to "statistical significance."¹²³ Drs. Singh and Moorman's classification of "excess risk" or "direction of the effect" glosses over the fact that case-control studies and cohort studies found varying strengths of association that do not amount to consistent results. Similarly, Dr. McTiernan's purported assessment of consistency by "look[ing] at whether the relative risk is above one consistently" is so broad that it is nonsensical, as it would consider near-null associations and definitively causal associations consistent.¹²⁴ And plaintiffs' experts' argument that certain studies would have shown a statistically significant increased risk if they had larger sample sizes (i.e., Dr. McTiernan with respect to cohort studies and Dr. Moorman with respect to small, non-statistically significant associations in African American and white women found in her 2009 study)¹²⁵ is speculative because there is no way to know whether a larger sample would provide the same or a different estimate or whether that estimate would be statistically significant. I note that the fact that Dr. Moorman did not include these results from her own 2009 study in her report suggests a biased approach to synthesizing the literature.¹²⁶ In any event, Drs. McTiernan and Moorman likewise ignored the Berge study's analysis demonstrating that the cohort studies collectively had sufficient power to detect a 1.25 relative risk if one existed; as the authors stated, "low power of cohort studies cannot be invoked as [an] explanation of the heterogeneity of results."¹²⁷

C. Specificity Is Not Compelling.

Specificity was not considered very important by plaintiffs' experts and I agree.¹²⁸ There is no compelling case for specificity here either.

D. The Epidemiological Data Do Not Show Biological Gradient (Dose Response).

1. Available Epidemiological Data On Dose-Response

Evidence of dose-response – i.e., whether the risk of developing ovarian cancer increases with increased perineal talc exposure – is one of the most important factors to consider in

¹²³ Moorman Dep. 266:6-16.

¹²⁴ McTiernan Dep. 212:17-21; *see* McTiernan Rep. at 44 (considering the near-null and not statistically significant 1.06 odds ratio reported in Houghton 2014 evidence of consistency of association); Moorman Dep. 263:13-264:13 (similar).

¹²⁵ McTiernan Rep. at 45-46; Moorman Dep. 136:12-19.

¹²⁶ Moorman Dep. 136:21-137:2; *see* Moorman PG1, Palmieri RT, Akushevich L, et al. Ovarian cancer risk factors in African-American and white women. *Am J Epidemiol.* 2009; 170(5):598-606 (reporting non-statistically significant odds ratios of 1.19 and 1.04 for African American and white women, respectively).

¹²⁷ Berge 2018 at 253; *see* Moorman Dep. 213:2-23; McTiernan Rep. at 46-47.

¹²⁸ Singh Rep. at 64.

evaluating causation. The epidemiological literature studying talc and ovarian cancer has failed to show a dose-response relationship. Plaintiffs' experts claim that there is sufficient data supporting the existence of a dose-response relationship¹²⁹ and have pointed to some studies as purported evidence of dose-response, including, for example, the articles by Schildkraut and Cramer.¹³⁰ But overall, the literature is very inconsistent with regard to dose-response, as Drs. Smith-Bindman and Moorman concede.¹³¹

None of the cohort studies (Gonzalez 2016; Houghton 2014; and Gates 2010/Gertig 2000) demonstrates a dose-response relationship, and only a handful of case-control studies (Harlow et al. 1992; Cramer 2016 and Schildkraut 2016) have purported to find one. The case-control studies have in fact shown a wide variety of findings, including: (1) a positive dose-response; (2) no dose-response; (3) a negative dose-response; and (4) a haphazard or bizarre pattern. Notably, among the numerous case-control studies that have not reported a dose-response relationship are several studies that have analyzed "cumulative" talc use (otherwise known as "frequency times duration" of use). For example, Mills 2004 examined cumulative dose by quartiles and reported risks of 1.03, 1.81, 1.74 and 1.06 for ascending quartiles – a bizarre trend that does not support there being a dose response.¹³² Similarly, the Cook 1997 study looked for an association across various strata of "cumulative lifetime days."¹³³ The results showed no statistically significant elevated risk for any of the four categories, with the relative risk for the lowest group (fewer than 2,000 cumulative days, RR 1.8 (95% CI: 0.9-3.5)) essentially matching that of the highest group (greater than 10,000 cumulative days, RR 1.8 (95% CI: 0.9-3.4)).¹³⁴ Moreover, as noted above, the Rosenblatt 2011 study looked at the association across four categories of increasing lifetime applications and reported the lowest associations (in fact, negative associations) for its two highest use categories.¹³⁵ In addition, Chang found an inverse relationship with risks related to use per month of 1.8, 1.1 and 0.9 for respectively <10, 10-25 and more than 25 applications; similar inverse findings for years of use were 1.7, 1.4 and 0.86 for <30, 30-40 and >40 years of use.¹³⁶

Although some studies have purported to observe a dose trend with cumulative use, those results are not meaningful. For example, the Schildkraut study only compared women who had used talc fewer than 20 years versus more than 20 years and fewer than 3600 applications versus

¹²⁹ Singh Rep. at 55-56; Smith-Bindman Rep. at 39-40.

¹³⁰ Singh Rep. at 56.

¹³¹ Smith-Bindman Rep. at 40 ("most but not all studies of talcum powder products and ovarian cancer show a dose response, but the results are inconsistent, and more importantly, are not considered or assessed in most of the published studies"); Moorman Dep. 272:5-10 ("across the studies, some have found a dose-response, some have not").

¹³² Mills 2004.

¹³³ Cook 1997 at 463.

¹³⁴ *Id.*

¹³⁵ Rosenblatt 2011 at 740.

¹³⁶ Chang & Risch 1997.

more than 3600 applications.¹³⁷ Although it found statistically significant associations for the higher but not lower use categories, the study provides little useful information about dose-response because exposure is crudely dichotomized into just two categories each for frequency and duration. And the Cramer study found essentially no difference – and certainly no steady increase – in risk as to women who had (as the study calculated) used talc for the equivalent of 1-5 years, 5-20 years and more than 20 years (odds ratios of 1.36, 1.41 and 1.39, respectively).¹³⁸

Several meta-analyses and pooled studies have analyzed the body of studies and resoundingly concluded that there is not a demonstrated dose response. For example, the 2013 Terry pooled study of eight case-control studies addressed the potential association between ovarian cancer and the use of powder (broadly defined to include both talc and cornstarch).¹³⁹ One of the primary goals of the analysis was to determine whether a dose-response relationship existed, as previous evidence “ha[d] been inconsistent.”¹⁴⁰ The authors found that it did not.¹⁴¹ Indeed, although Dr. Siemiatycki claims that this study is “the most important evidence around dose-response,” the authors stated that they “observed ***no significant trend in risk with increasing number of lifetime applications***,” as he has acknowledged.¹⁴² The Terry study, in fact, only observed a positive dose trend when including non-talc users in the analysis,¹⁴³ which is not actually meaningful evidence of a dose response, since including nonusers in a dose-response analysis makes that analysis redundant with whether there is an association with ever/never use, as Dr. Siemiatycki acknowledges.¹⁴⁴ Although Dr. Siemiatycki argues that it may be appropriate to include nonusers in the dose-response analysis when a study only reports on dose-response and not ever/never use,¹⁴⁵ that clearly does not apply to the Terry study, which reported on both types of data. Of note, the Terry authors did not mention the trend with nonusers in their abstract or discussion, instead highlighting that they found “no significant [dose] trend” and explaining that “[w]hether risk increases with number of genital powder applications and for all histologic types of ovarian cancer . . . remains uncertain.”¹⁴⁶ The authors also acknowledged that, if anything, the study might ***overstate*** the relationship between powder use and ovarian cancer if cases [i.e., women with ovarian cancer] were more likely to report

¹³⁷ Schildkraut 2016 at 1415-1416 (Table 2).

¹³⁸ Cramer 2016 at 337 (Table 1).

¹³⁹ Terry 2013 at 812.

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.* at 811, 812 (emphasis added); Siemiatycki Dep. 197:17-22, 266:8-15, 268:14-21.

¹⁴³ Terry 2013 at 817.

¹⁴⁴ Siemiatycki Rep. at 43 (“If the Ever/Never result is presented and then a dose-response analysis is conducted, it is preferable to maintain statistical independence of the two analyses by excluding the baseline unexposed category from the dose-response analyses).

¹⁴⁵ *Id.*

¹⁴⁶ Terry 2013 at 811, 819-20.

genital-powder use than controls [i.e., women without ovarian cancer].”¹⁴⁷

Similarly, a 2008 meta-analysis identified “the absence of clear exposure-response associations in most studies” as a crucial piece of missing evidence needed to establish causation.¹⁴⁸ And in assessing the body of literature, the National Cancer Institute (“NCI”) and the United States Food & Drug Administration (“FDA”) have respectively concluded that “a dose response relationship was not found” and that “dose-response evidence is lacking.”¹⁴⁹ Although two more recent meta-analyses claimed to find evidence of a very small dose-response, these data are not compelling. Specifically, Berge 2018 reported a “weak” dose-response trend, but cautioned that these data came from a small number of case-control studies.¹⁵⁰ And Penninkilampi divided talc users into only two categories (greater and fewer than 3,600 lifetime applications), finding only a “slightly greater increased risk” for the former category (also based only on case-control data).¹⁵¹ As with Schildkraut, the arbitrary dichotomous categorization of lifetime use further undercuts the significance of this finding.

Consistent with these results, pathological studies have not reported a correlation between the amount of talc used and talc particle counts in ovaries. As one study explained: “ovarian talc particle burden has been found not to correlate with the reported number of lifetime applications, which (if not reflective of inaccurate reporting) may indicate that duration of the powder use is not relevant when assessing risk associated with differing levels of exposure to talc.”¹⁵²

In sum, the findings of so many different patterns, or lack of patterns, by dose-response estimation weighs against causation, and indeed, the fact that the data show no clear dose trend is consistent with there being no causal relationship. If one were to believe that perineal talcum powder use causes ovarian cancer, these mixed and inconsistent results should cast serious doubt

¹⁴⁷ *Id.* at 820.

¹⁴⁸ Langseth 2008 at 359; *see* Gertig 2000 at 249, 251 (cohort study concluding that “[w]e did not observe a dose-response relationship with talc use, and previous studies have been inconsistent in this regard”); Cramer 1999 at 355 (case-control study by Dr. Daniel Cramer conceding that “[t]he most obvious weakness in the argument for biologic credibility of the talc and ovarian cancer association is the lack of a clear dose response” and that “[m]ost talc and ovarian cancer studies that have addressed dose response, including this one, have failed to demonstrate consistent dose response relationships”).

¹⁴⁹ National Cancer Institute, Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention (PDQ®)—Health Professional Version, <https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq> (last updated Jan. 4, 2019); Letter from Food & Drug Administration, U.S. Department of Health and Human Services, to Samuel S. Epstein, M.D., Cancer Prevention Coalition, University of Illinois (Apr. 1, 2014); International Agency for Research on Cancer, Monographs on the Evaluation of Carcinogenic Risks to Humans Vol. 93: Carbon Black, Titanium Dioxide, and Talc 18-19 (2010) (“IARC Talc Monographs”) (concluding that evidence of a dose-response relationship was “inconsistent”).

¹⁵⁰ Berge 2018 at abstract, 255.

¹⁵¹ Penninkilampi 2018 at 45.

¹⁵² Rosenblatt 2011 at 742 (discussing Heller DS, Westhoff C, Gordon RE, Katz N. The Relationship Between Perineal Cosmetic Talc Usage and Ovarian Talc Particle Burden. *Am J Obstet Gynecol.* 1996; 174(5):1507-1510 (“Heller 1996”)).

on the validity of the measures used to estimate whether and how much talcum powder was used.

2. Validity Of Exposure Measure

In epidemiologic research, it is critical to assess exposures of interest with accuracy and precision. This includes measuring exposures with tools that have demonstrable validity. Without a validated measure of exposure, it is not possible to know whether or not an exposure occurred, and even if it did, it is not possible to quantify the exposure with any degree of certainty.

While there is a scientific approach for development and testing of survey questions for use in research,^{153,154,155} there is not a single epidemiologic study of the potential association between perineal use of cosmetic talcum powder and ovarian cancer that has used, or purports to have used, a validated measure of talcum powder use.¹⁵⁶ Thus, it is unknown whether any of the studies have accurately assessed whether talcum powder was used, for how long and how frequently. Self-report measures can be highly inaccurate, and none has been shown to be valid. In studies of medication use, for example, validation of self-report can come from examining pharmacy dispensation records or deploying electronic counters to medications as objective measures to validate a person's reported use of a medication. No such efforts have gone into the development of questions about self-reported talc use.

Even more important, perhaps, is that no study has a measure that has been shown to estimate the relevant dose of talcum powder. An "application" of talcum powder has no standard definition. It is unknown how much, if any, talcum powder reported on any of the questionnaires is applied to the perineum, how much, if any, reached the vagina, nor how much, if any, reached the ovaries. The problem is especially profound in this context, because slight inaccuracies in estimating the amount used on a daily basis could significantly alter total estimated use where the history in some cases spans multiple decades. Thus, it is impossible from the studies to determine how much, if any, talcum powder was applied to the perineum, and likewise impossible to measure how much, if any, talcum powder migrated into the vagina, across the cervix, up through the uterus and eventually reached the ovaries. At best, the wide variety of non-validated measures of talcum powder use can collect hypothesis-generating data, and there is no assurance that any estimates of talc use are accurate or valid.

Below is an example of the challenges presented when a validated measure of exposure is nonexistent:

¹⁵³ See generally Aday LA, Cornelius LJ. *Designing and Conducting Health Surveys: A Comprehensive Guide*. 3rd ed. San Francisco, CA: 2006.

¹⁵⁴ Fowler FJ Jr. *Survey Research Methods*. 5th ed. Thousand Oaks, CA: 2014.

¹⁵⁵ Seifert B. Validity criteria for exposure assessment methods. *Sci Total Environ*. 1995; 168(2):101-107.

¹⁵⁶ See McTiernan Dep. 53:18-22 ("It was not possible to determine exactly how much talcum powder product was used").

Consider the question of whether or not consumption of milk can either cause or protect against the development of allergies. It might seem simple that one could design a survey to ask people, with and without allergies, about their past consumption of milk. A question could be: in the past 12 months, did you drink milk? People with and without allergies could be compared by whether or not they drink milk. But does the development of allergy depend on the amount of fat in the milk? In that case, we need to ask if the milk was whole milk, skim milk, 1%, or 2% fat? And does the person only drink one of those types of milk or multiple types of milk? Perhaps a person drinks 2% milk, but uses half-and-half in their coffee. So, we would need questions to understand that. In case people change their milk preferences over time, we might need questions to determine at what ages the person drank whole milk, for example, and then when did they start also drinking skim milk.

But what if the issue of allergy is related to protein in milk? Then we need to be able to assess any other beverages and foods that contain milk protein. We cannot simply ask about milk. The range of foods with milk protein is tremendous and includes yogurt, milkshakes, and breads. Among breads alone, milk protein can be found in loaves of bread, biscuits, donuts, crackers, pancakes, waffles, French toast and others. Milk protein can be found in other foods, too, such as cereals and desserts, including cake, cookies, pudding, ice cream and pastries. Milk protein may be in scrambled eggs, butter, cream and margarine, salad dressing and even some “non-dairy” creamers. The list of foods with milk proteins goes on and on, even including meat products such as sausage, vegetables prepared *au gratin* or with butter or cream, candy including chocolate and many soups, chowders and bisques.

It should be apparent that our simple question about milk is far more complicated than whether or not one drinks milk.

Once we have identified all of the foods and beverages we need to ask about, we still need to determine the amount, or “dose,” of milk consumed. This step can be very difficult. If you ask about eating soup that may have milk in it, how do you quantify it? A cup or a bowl? How big is the cup? Is the cup full to the top or about 2/3 of the way up? How much milk is in a “glass” of milk? We might need some tools to use, such as food models or empty containers, to show the person telling us the amount they consumed.

And then if we agree on a way to standardize how large is a portion of soup or milk, how do we know that people are accurately reporting when they say they typically drink 3 glasses of milk per week? The answer is: if we want to come close to knowing the truth, then we have to demonstrate the validity of the questionnaire.

The validation process is separate from the research study and typically enrolls other people for the sole purpose of determining whether and how well the questionnaire works. One method is to ask people to fill out very detailed food diaries for a few different days (in nearly real-time as they are eating and drinking, so the information is fresh) and then compare how those same people answer a question a week later about what they consumed over the past week. The extent to which the answers using the two methods are in agreement provides evidence for the validity of the survey questions. Other approaches include asking people to take pictures of what they eat to use for validation. The main point is that there is a formal process of determining the validity of survey questions that is necessary if one wants to collect high quality data and be able to approximate the truth.

Certain of plaintiffs' experts have raised related issues in their critiques of the evidence for and against dose-response.¹⁵⁷ However, these same issues of validity of the exposure measure are just as important for assessing the overall proposition of whether or not talcum powder causes ovarian cancer. For example, Dr. Smith-Bindman criticizes Gates and other cohort studies for examining any talc use (which she labels "a weak, crude predictor").¹⁵⁸ But if Dr. Smith-Bindman believes the cohort studies suffer from assessing "any" use, she should apply this criticism even-handedly to the case-control studies and meta-analyses (such as the Penninkilampi study) that did the same. And she further should have pointed out that the questionnaires that case-control studies use to assess talc use habits are often haphazardly designed and not validated. Indeed, as Dr. Smith-Bindman observes, the Terry study (which numerous plaintiffs' experts rely on heavily) reported that the prevalence of powder use by controls in the underlying studies ranged from 15 to 45 percent, which she attributes to "variation in the definition of powder use" in the underlying studies it examined.¹⁵⁹ Her point affirms concern about the validity of talc exposure assessment and that the magnitude of error could be tremendous. But cohort studies are not uniquely subject to exposure assessment problems, and it is inappropriate for plaintiffs' experts to criticize them for this reason while ignoring similar issues with case-control studies.¹⁶⁰

Further highlighting the importance of using validated measures of exposure, Dr. Colditz described the evolution of the Nurses' Health Study and noted that "there have been continuing efforts to validate questionnaire-based exposure measures used in the study."¹⁶¹ For example, in order to measure nutritional exposures that might be relevant to cancer and other disease risks, Dr. Colditz noted that "[a]ssessment of long term diet is necessary to relate nutrient intake to the risk of chronic diseases," and that "this is best accomplished through the use of a food-frequency questionnaire." Further, he stated that the "Nurses' Health Study investigators have devoted great attention to the development, evaluation and refinement of food-frequency questionnaires

¹⁵⁷ Singh Rep. at 55.

¹⁵⁸ Smith-Bindman Rep. at 21.

¹⁵⁹ Smith-Bindman Rep. at 28.

¹⁶⁰ *E.g.*, Moorman Dep. 187:13-18 (criticizing Gonzales 2016).

¹⁶¹ Colditz GA, Hankinson SE. The Nurses' Health Study: lifestyle and health among women. *Nat Rev Cancer*. 2005; 5(5):388-396. ("Colditz 2005").

for epidemiological applications.” There were no such efforts employed in the NHS, nor in any other study, to develop and validate measures of talcum powder use.

Other authors have repeatedly discussed the limits of exposure measures in the epidemiologic studies. For example, in Schildkraut, the authors stated: “A recent publication of data from the WHI, which did not find an association with genital talc use and ovarian cancer, was accompanied by an editorial that emphasized the challenges in assessing the exposure to talc due to reliance on self-report. This limitation in the measurement of the exposure variables in the current study needs to be considered when interpreting our results.”¹⁶² And the Berge authors noted as a limitation to their meta-analysis that “neither the definition of the exposure of interest (genital talc use) nor the strategy for adjustment for potential confounders were fully consistent across studies.”¹⁶³ Another limitation was the “self-reported information on the main exposure of interest, with no external validation.”¹⁶⁴ In the Langseth (2008) paper, the authors noted that “the current body of epidemiologic evidence is insufficient to establish a causal association between perineal use of talc and ovarian cancer risk,” and pointed to the “crudeness of the exposure metric used,” and that “it is important that future studies, irrespective of study design, devote some effort to better assessment of exposure.”¹⁶⁵ This “crudeness” of the exposure measure was apparent in Terry (2013) as the authors needed to define genital powder use as “any type of powder (talc, baby, deodorizing, cornstarch or unspecified/unknown)” and acknowledged that a study limitation was “differences in the wording of questions about genital powder use between studies.”¹⁶⁶ In the same vein, another author cautioned that composition of body powders varies from one brand to the next. Thus, “[d]ata from additional cohort studies would be welcome, but without details concerning the composition of the powders used by cohort members—details that many participants may not be able to provide—the results of such studies may be similarly ambiguous in their interpretation.”¹⁶⁷ Dr. Cramer, a plaintiffs’ expert in prior talc cases, similarly acknowledged that “[t]here are inherent limitations quantifying a dose-response due to a lack of metrics for how much talc is in an ‘application,’ how much enters the vagina, and how much reaches the upper genital tract where, presumably, any deleterious effect is mediated.”¹⁶⁸ Many other authors expressed similar concerns pertaining to the accuracy of exposure measurements.¹⁶⁹

¹⁶² Schildkraut 2016 at 1416.

¹⁶³ Berge 2018 at 255.

¹⁶⁴ *Id.*

¹⁶⁵ Langseth 2008.

¹⁶⁶ Terry 2013 at 812, 820.

¹⁶⁷ Rosenblatt 2011.

¹⁶⁸ Cramer 2016 at 344.

¹⁶⁹ Gonzalez 2016 (“one challenge with studying talc is that the chemical formulation of talc has changed over time, and not all powders contain the mineral talc”); Cook 1997 (“it is not clear how ascertainment of perineal powder application correctly estimates actual exposure to particles in powder that may influence ovarian cancer risk”); Mills 2004 at 463 (“the lack of dose response between talc use and EOC may be explained by the inability to quantify the actual amount of talc used per application and timing of the application”); Rosenblatt 2011 (“the validity of all these studies, including ours, may be influenced by the level of non-response among cases and

In sum, without a validated measure of talcum powder use, it is impossible to correctly determine whether or not an exposure occurred or the quantity of purported exposure, making it impossible to reliably conclude that there is a causative relationship between perineal talcum powder use and ovarian cancer based on the current literature.

E. The Epidemiological Data Do Not Demonstrate Temporality.

The strongest evidence for temporality comes from studies that assess the exposure at one point in time, and then assess the outcome at a future time. The prospective cohort studies are the only studies in this matter that do that and thus represent the best evidence to assess temporality. As described more fully above, the cohort studies failed to show an association of ovarian cancer with talcum powder use. The case-control studies ask about past exposure, but they ask those questions at the same time that the outcome is already known. Temporality is assumed in case-control studies, though it is not a fact, as it is in cohort studies (or clinical trials). That is the reason that recall errors and recall bias are such a concern in case-control studies. Unlike prospective studies, subjects need to accurately remember and report past exposures. Recall bias occurs when people with a disease, compared to those without a disease, report different exposure histories compared to the truth. People with a disease may be more likely to recall or report exposures than those without the disease, which can inflate the apparent risk. This distortion is especially important when measured risks are low.

While it is a different concept from temporality, latency is a concept that is important to consider when evaluating temporality. Latency is the time from exposure to development of disease. When latency is known, one would want to make sure that not only did the exposure occur in the past, but that it occurred long enough ago in the past that a cancer would have time to develop. Obviously, without determining whether or not talcum powder causes ovarian cancer, it is not possible to state that there is a known latency. Nonetheless, Dr. Wolf states that the average latency period between exposure to talc and diagnosis of ovarian cancer is at least 20 years, citing two articles^{170,171} that do not examine this issue.¹⁷² Based on this theory, several experts have stated that a limitation of the cohort studies is that they were not of sufficient length to capture latency.¹⁷³ Obviously, without a known latency period, that concept is only speculative. Moreover, as explained above, the cohort studies have accounted for decades of talcum powder use. Thus, if women started using talcum powder at approximately 20 years

controls, and by the potential for misclassification (differential and non-differential) of exposure status. The latter derives not just from errors in the recall of the use of genital powder, but from the fact that the presence or concentration of talc can vary from brand to brand and even within one brand of powder over time. Therefore, even when respondents are asked specifically about perineal exposure to powders that contain talc (as in our study), they may be unable to provide accurate information.”).

¹⁷⁰ Purdie DM, Bain CJ, Siskind V, et al. Ovulation and risk of epithelial ovarian cancer. *Int. J. Cancer*. 2003; 104:228-232.

¹⁷¹ Okada F. Beyond foreign-body-induced carcinogenesis: Impact of reactive oxygen species derived from inflammatory cells in tumorigenic conversation and tumor progression. *Int. J. Cancer*. 2007; 121:2364-2372.

¹⁷² Wolf Rep. at 15.

¹⁷³ Singh Rep. at 11, 53; McTiernan Rep. at 47.

old¹⁷⁴ and the latency period is approximately 20 years,¹⁷⁵ then both the Women's Health Initiative Study and Sister Study would account for a sufficient latency period.

F. The Epidemiological Data Lack Coherence.

Dr. Hill stated that the cause and effect interpretation of the data “should not seriously conflict with the generally known facts and the biology of the disease.” Dr. Hill cited the example of temporal trends in the rise in lung cancer rates while smoking was increasing. But here, there are no published studies that have demonstrated any such ecological coherence with talcum powder and ovarian cancer. Specifically, I can find no published studies that have examined trends in ovarian cancer rates in relation to trends in talcum powder use. Dr. Hill also cited, as an example of coherence, the changes of bronchial epithelial cells in smokers. But again, here there are no studies that have demonstrated histopathological differences in ovaries of talc users and non-users (nor in any tissues of the female genital tract). This fact strongly argues against coherence.

G. No Experimental Evidence.

There is no experimental evidence of the relationship of talcum powder use and ovarian cancer in humans, as plaintiffs' experts agree.¹⁷⁶

H. The Epidemiologic Data Is Not Analogous.

A few of the experts considered analogy, although Dr. Moorman “did not weight it heavily”¹⁷⁷ and Dr. Singh found it “less significant than other viewpoints.”¹⁷⁸ They and other experts opined that talcum powder's similarity to asbestos offers an appropriate analogy,¹⁷⁹ but asbestos and talc are distinct minerals, with distinct elemental composition and morphology, and it cannot simply be assumed that epidemiological study of asbestos can be applied by analogy to the case of talc, especially in light of the fact that talc itself has been extensively studied and its epidemiological literature reports vastly different risk levels than the asbestos literature. In particular, the talc/asbestos analogy is unpersuasive because talc exposure is not associated with an increased risk of mesothelioma or lung cancer (diseases caused by asbestos), and as set forth below, it is far from clear that asbestos causes ovarian cancer. Moreover, the limited analogy arguments that plaintiffs' experts advance do not make sense. For example, Dr. Moorman compares asbestos to “asbestiform talc,” but fails to explain why her attempted analogy applies to platy talc.¹⁸⁰ Dr. Smith-Bindman similarly refers to talc's “fibrous nature,” even though platy

¹⁷⁴ Cramer 2016 at 335.

¹⁷⁵ Wolf Rep. at 15.

¹⁷⁶ Moorman Rep. at 38; Singh Rep. at 66; Wolf Rep. at 16.

¹⁷⁷ Moorman Rep. at 38.

¹⁷⁸ Singh Rep. at 66.

¹⁷⁹ Moorman Rep. at 38; Singh Rep. at 66; Smith-Bindman Rep. at 41.

¹⁸⁰ Moorman Rep. at 38.

talc is not fibrous, and she further essentially concedes that the talc-ovarian cancer evidence is “weak[]” in making the unsupported claim that “weaker evidence” should suffice to prove causation when there is an appropriate analogy.¹⁸¹ In short, analogy has not been established.

I. The Evidence For A Biological Mechanism By Which Talc Could Cause Cancer Is Weak.

Plaintiffs’ experts generally propose that talc or alleged other constituents in talcum powder (e.g., asbestos, heavy metals or fragrance chemicals) can travel from the perineum up the genital tract to the ovaries – against gravity and the downward flow of vaginal mucous and menstrual fluids.¹⁸² They also suggest an alternative pathway, via inhalation and the lymphatic system.¹⁸³ These proposed mechanisms are speculative and unsupported by science.

1. Studies Have Repeatedly Stated That Scientific Evidence Is Insufficient To Show Mechanisms Of Talc-Based Ovarian Carcinogenesis.

As an initial matter, based on my review of the available epidemiologic literature, many authors of studies have made clear that the evidence is insufficient to understand any purported mechanism by which talc-based cosmetic powders could cause ovarian cancer. For example:

Penninkilampi (2018)¹⁸⁴

“[T]he potential mechanism by which genital talc is associated with an increased risk of ovarian cancer hence remains unclear.”

“[U]nfortunately, the evidence remains insufficient to understand the mechanisms with any reasonable certainty.”

“[T]here is a substantial need for further research on a potential mechanism.”

Berge (2018)¹⁸⁵

“[T]he biological basis and plausibility of a possible carcinogenic effect of talc on the ovaries is still not understood and remains questionable.”

¹⁸¹ Smith-Bindman Rep. at 41.

¹⁸² Carson Rep. at 8; Kane Rep. at 4, 14; McTiernan Rep. at 8, 58-59, 66; Moorman Rep. at 32-33; Plunkett Rep. at 27-38; Singh Rep. at 18-19, 57; Singh Dep. 212:6-18; Smith-Bindman Rep. at 35; Zelikoff Rep. at 12-14.

¹⁸³ Carson Rep. at 8; Kane Rep. at 14; McTiernan Rep. at 58-59, 66; Moorman Rep. at 33; Plunkett Rep. at 27-28; Singh Rep. at 18-19, 57-58; Wolf Rep. at 11, 15; Zelikoff Rep. at 14-17.

¹⁸⁴ Penninkilampi 2018 at 11-12, 14.

¹⁸⁵ Berge 2018 at 255.

Cramer (2016)¹⁸⁶

“[U]nfortunately, no epidemiologic study of epithelial ovarian cancer and talc has taken the opportunity to determine whether talc can actually be found in tissues removed at surgery and correlated with exposure to talc.”

Terry (2013)¹⁸⁷

“[T]he biological plausibility for the observed association between genital powder use and ovarian cancer has been challenged because evidence for dose-response has been inconsistent.”

“[L]ittle is known about the biologic effects of genital powder use.”

“[M]ore work is needed to understand how genital powders may exert a carcinogenic effect, and which constituents (e.g., talc) may be involved.”

Gates (2008)¹⁸⁸

“The association remains controversial due to the lack of a clear dose-response with increasing frequency or duration of talc use, the possibility of confounding or other biases, and the uncertain biological mechanism.”

Merritt (2008)¹⁸⁹

“[T]hese results in combination with previous studies suggest that chronic inflammation is unlikely to play a major role in the development of ovarian cancer.”

Mills (2004)¹⁹⁰

“[R]esearch has provided little biologic or experimental evidence to support a relationship between talcum powder use and ovarian cancer risk.”

Whittemore (1988)¹⁹¹

“While these findings indicate that vaginal exposure to particulates can lead to deposition on the ovaries, they do not implicate such exposure in ovarian carcinogenesis, and data relating directly to this possibility are needed.”

¹⁸⁶ Cramer 2016 at 344.

¹⁸⁷ Terry 2013 at 819-20.

¹⁸⁸ Gates 2008 at 2437.

¹⁸⁹ Merritt 2008 at 174.

¹⁹⁰ Mills 2004 at 464.

¹⁹¹ Whittemore 1988.

As these excerpts make clear, plaintiffs' experts' suggestion that biological plausibility is "accepted widely" based on "robust data" is simply false.¹⁹²

2. Scientific Study Does Not Support The Inhalation Or Migration Theories By Which Talc Is Supposed To Reach The Ovaries.

Scientific data also fail to demonstrate a plausible mechanism by which talc or accessory particles could physically reach the ovaries from external use.

Plaintiffs' experts principally suggest that talc and asbestos particles can travel from the perineum up the genital tract to the ovaries – against gravity and the downward flow of vaginal mucous and menstrual fluids.¹⁹³ The results of research addressing retrograde transport have been inconclusive.¹⁹⁴ For example, one study examining the amount of talc in the ovaries of women who had undergone surgery for benign ovarian neoplasms found no correlation between the women's talc use and their talc particle counts.¹⁹⁵ Another study reviewed pathology slides from 213 ovarian tumors and found definite silicate crystals in only five patients, which may have reflected talc contamination from surgical gloves.¹⁹⁶ And as noted by IARC, while some studies of potential retrograde movement of particles in women who were about to undergo gynecological surgery for diseases or complications of the reproductive tract or organs have suggested that such transport is possible, "broad interpretations with regard to healthy women" based on these studies "may be limited."¹⁹⁷ Thus, IARC reported that, "[o]n balance, the Working Group believed that the evidence for retrograde transport of talc to the ovaries in normal women is weak."¹⁹⁸

Relatedly, while plaintiffs' experts point out that talc particles and asbestos fibers have been found in ovarian tissue, this fact is of no scientific significance because researchers have found such particles in the ovaries of women with and without perineal talc use or other known exposures to talc or asbestos.¹⁹⁹ The Heller (1996) study found that "talc particles were observed to a similar extent with both exposed and unexposed subjects" and that particles were actually found in higher proportions among women who did not apply talc on the perineum, stating that "our results do not support a linear dose-related ovarian talc particle burden."²⁰⁰ As this research

¹⁹² Blair Smith Rep. at 20; Moorman Rep. at 32; Singh Rep. at 65.

¹⁹³ Singh Dep. 212:6-18, 215:7 ("talc can migrate upwards").

¹⁹⁴ IARC Talc Monographs at 392.

¹⁹⁵ Heller 1996.

¹⁹⁶ Yaker A, Benirschke K. A ten year study of ovarian tumors. *Virchows Arch A Pathol Anat Histol.* 1975; 366(4):275-86.

¹⁹⁷ IARC Talc Monographs at 392.

¹⁹⁸ *Id.* at 411.

¹⁹⁹ Heller 1996 at 1508, 1510; Heller DS, Gordon RE, Westhoff C, Gerber S. Asbestos exposure and ovarian fiber burden. *Am J Ind Med.* 1996;29(5):435-439 (noting that asbestos fibers were found in ovarian tissue of women with and without history of exposure).

²⁰⁰ Heller 1996 at 1508, 1510.

indicates, the presence of fibers in ovarian tissue does not establish the relevant exposure pathways.

Studies have also failed to show an association between use of talc-dusted diaphragms and condoms and ovarian cancer.²⁰¹ Evaluating an association with the use of talc-dusted diaphragms and condoms has been deemed “the most valid method for testing the carcinogenic potential of talc” because “[b]y definition, the female reproductive tract is exposed to talc containing powders introduced by diaphragms, whereas an exposure route based on perineal dusting requires unproven assumptions about vaginal exposure.”²⁰²

Moreover, numerous studies have considered whether tubal ligation and hysterectomy – procedures that “block the environmental contamination of the ovaries” – are associated with a decreased risk of ovarian cancer generally, while others have looked at this question in perineal talc users specifically.²⁰³ Although plaintiffs’ experts assert that these studies “strongly suggest that the increased risk of ovarian cancer associated with talcum powder products use is reduced or eliminated after tubal ligation or hysterectomy,”²⁰⁴ my review of the available literature reveals that the results have been inconsistent.²⁰⁵ In fact, the only cohort study to address this issue concluded that “no effect modification was seen by history of tubal ligation.”²⁰⁶ And a pooled analysis of case-control studies observed similar associations for talc use in women with tubal ligation or hysterectomy regardless of whether the “exposure to genital powder applications” occurred before or after the surgery.²⁰⁷ Several case-control studies have found a lower incidence of ovarian cancer in patients who had tubal ligation but a higher incidence in patients who had hysterectomies,²⁰⁸ which is a puzzling result since both hysterectomy and tubal ligation should cut off the pathway through which talc could travel to the ovaries. Because tubal ligation and hysterectomy would prevent the migration of talc particles from the perineum, the

²⁰¹ Hartge 1983; Fiume 2015 at 122S (“[S]tudies demonstrating that the use of talc-dusted condoms or diaphragms, which would clearly result in exposure close to the cervical opening, [have found that talc] was generally not associated with increased RR estimates for ovarian cancer.”); Muscat & Huncharek 2008 at 5-6 (describing meta-analyses showing no association between use of talc-dusted diaphragms and condoms and ovarian cancer); Penninkilampi 2018 at 42, 44 (“Talc use on diaphragms or on sanitary napkins was not individually associated with increased risk of ovarian cancer.”).

²⁰² Muscat & Huncharek 2008 at 5, 9 (“It may be argued that the overall null findings associated with talc-dusted diaphragms and condom use is more convincing evidence for a lack of a carcinogenic effect, especially given the lack of an established correlation between perineal dusting frequency and ovarian tissue talc concentrations and the lack of a consistent dose-response relationship with ovarian cancer risk.”).

²⁰³ *Id.* at 7.

²⁰⁴ Smith-Bindman Rep. at 35.

²⁰⁵ Muscat & Huncharek 2008 at 7; Singh Rep. at 23 (admitting that the Terry pooled study found that “[a]fter excluding those with tubal ligation and hysterectomy, the results were similar. Restricting analysis to application before tubal ligation made no substantive difference.”).

²⁰⁶ Gertig 2000 at 251.

²⁰⁷ Terry 2013 at 817.

²⁰⁸ Mills 2004 (finding odds ratios of 0.88 and 1.54 for tubal ligation/no tubal ligation and odds ratios of 1.79 and 1.33 for hysterectomy/no hysterectomy); Cramer 1999 at 352 (odds ratios of 0.98 and 1.80 for tubal ligation/no tubal ligation and 2.61 and 1.60 for hysterectomy/no hysterectomy).

fact that studies have not consistently shown a reduced risk associated with these surgeries undermines the premise that talc particles travel to the ovaries and cause cancer.

Finally, some of plaintiffs' experts espouse a theory that talc or accessory particles can reach the ovaries via inhalation (i.e., that women who use cosmetic talc inhale some amount of talc particles while they are applying cosmetic talc).²⁰⁹ But I have not seen a mechanistic study that demonstrates that inhaled talc particles can reach the ovaries, and plaintiffs' experts concede there is not sufficient evidence pertaining to inhalation of talcum powder.²¹⁰ Furthermore, while most of the epidemiologic studies did not examine non-perineal application of talcum powder, those that assessed application to other body parts found inconsistent results. For example, although Penninkilampi found a small elevation in risk with "any non-perineal" talc use [1.24(1.01-1.51), this finding was limited by finding significant heterogeneity across the studies. In the Terry pooled analysis of more than 18,000 women, non-perineal application showed no risk [0.98(0.89-1.07)]. Likewise, the recent study by Cramer (2016) showed no association of body use of powder with ovarian cancer [0.99[0.84-1.16].

3. The Theory That Talc Can Cause Inflammation That Promotes Cancer Lacks Scientific Support.

The theory asserted by several of plaintiffs' experts that talc particles that reach the ovaries can cause inflammation leading to cancer (the "inflammation theory") also lacks support.²¹¹

First and foremost, no biological mechanism theory accounts for the fact that talc is not mutagenic or genotoxic.²¹² This fact significantly undermines the theory that talc causes ovarian cancer, since gene mutation is widely recognized as what triggers ovarian cancer.²¹³ And Dr. Singh's assertion – without citation – that "[t]alc has also been shown to be mutagenic"²¹⁴ is simply incorrect, as is Dr. McTiernan's similar assertion that talc can cause genotoxicity.²¹⁵ In

²⁰⁹ McTiernan Rep. at 66; Siemiatycki Rep. at 65; Moorman Rep. at 33; Singh Rep. at 19, 57-58.

²¹⁰ Moorman Dep. 303:17-304:15 (stating there is not sufficient evidence to conclude that inhaled talcum powder causes ovarian cancer because there are not "epidemiologic studies that have actually looked at inhaled talcum powder in relation to ovarian cancer"); Singh Dep. 216:14-19 (agreeing that "studies of talcum powder use failed to show a statistically significant association between nongenital use of talcum powder and ovarian cancer").

²¹¹ Smith-Bindman Rep. at 12; McTiernan Rep. at 8; Siemiatycki Rep. at 65; Moorman Rep. at 33-34; Singh Rep. at 19.

²¹² Muscat & Huncharek 2008 at 9 (citing Endo-Capron S, Renier A, Janson X, et al. In vitro response of rat pleural mesothelial cells to talc samples in genotoxicity assays (sister chromatid exchanges and DNA repair). *Toxicol In Vitro*. 1993; 7(1):7-14); IARC Talc Monographs at 399.

²¹³ Mayo Clinic, Cancer (Dec. 12, 2018), <https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588>; Anand P, Kunnumakkara AB, Sundaram C, et al. Cancer is a preventable disease that requires major lifestyle changes. *Pharm Res*. 2008; 25(9):2097-2116, 2098 (noting that "all cancers are a result of multiple mutations").

²¹⁴ Singh Rep. at 19.

²¹⁵ McTiernan Rep. at 67.

this vein, animal studies (including studies directly injecting talc into the ovaries of rats) have not shown that prolonged exposure to talc causes ovarian cancer or precancerous changes in ovarian cells.²¹⁶ Likewise, in vitro and pathological studies have not shown evidence of talc-induced ovarian cancer.²¹⁷

The inflammation theory is also unsupported and implausible. A recent study sought to determine whether histological signs of inflammation were associated with ovarian cancer and found “no significant correlation . . . between serous carcinoma and histological signs of inflammation or chronic tubal injury.”²¹⁸ Studies have not established a causal association between the use of cosmetic talc and cancers in vaginal, uterine and cervical tissue.²¹⁹ If talc (or alleged asbestos in talc products) produced inflammatory responses or carcinogenesis in ovarian tissue, it might also produce the same in other tissue. These tissues are closer to the perineum than the ovaries and likely are exposed to greater concentrations of talc than the ovaries.

The lack of evidence showing a reduced risk associated with the use of anti-inflammatory drugs further undermines the inflammation theory. Most meta-analyses examining this issue have found no risk reduction with either aspirin or NSAID use.²²⁰ One did report a modest risk reduction for aspirin use but found no such reduction for non-steroidal anti-inflammatory drug (“NSAID”) use.²²¹ The meta-analysis concluded that “[f]urther biological and pharmacological

²¹⁶ Muscat & Huncharek 2008 at 9 (lifetime whole body exposure experiments in female laboratory rats found that ovarian tissue was not contaminated with talc and that ovarian tumor incidence was not increased) (citing Boorman GA, Seely JC. The lack of an ovarian effect of lifetime talc exposure in F344/N rats and B6C3F1 mice. *Regul Toxicol Pharmacol.* 1995; 21(2):242-243); Hamilton TC, Fox H, Buckley CH, et al. Effects of talc on the rat ovary. *Br J Exp Pathol.* 1984; 65(1):101-106 (study exposing rat ovaries to talc finding that the “epithelium covering the papillae was regular with no evidence of cytoplasmic or nuclear atypia”; there was no “evidence of frank neoplasia”; and that observed inflammation was not near the papillae).

²¹⁷ Muscat & Huncharek 2008 at 9; IARC Talc Monographs at 397-98; Lee P, Sun L, Lim CK, et al. Selective apoptosis of lung cancer cells with talc. *Eur Respir J.* 2010; 35(2):450-452, 452; Nasreen N, Mohammed KA, Brown S, et al. Talc mediates angiostasis in malignant pleural effusions via endostatin induction. *Eur Respir J.* 2007; 29(4):761-769, 761-762 (in vitro studies reporting that talc stops new blood vessels from forming and causes cell death only in malignant cells, leaving healthy cells alone).

²¹⁸ Malmberg K, Klynning C, Flöter-Rådestad A, Carlson JW. Serous tubal intraepithelial carcinoma, chronic fallopian tube injury, and serous carcinoma development. *Virchows Arch.* 2016; 468(6):707-713.

²¹⁹ Singh Dep. 209:9-16.

²²⁰ Bonovas S, Filioussi K, Sitaras NM. Do nonsteroidal anti-inflammatory drugs affect the risk of developing ovarian cancer? A meta-analysis. *Br J Clin Pharmacol.* 2005; 60(2):194-203 (RR 0.93 (95% CI: 0.81-1.06) for aspirin use; RR 0.88 (95% CI: 0.76-1.01) for NSAID use); Ni X, Ma J, Zhao Y, et al. Meta-analysis on the association between non-steroidal anti-inflammatory drug use and ovarian cancer. *Br J Clin Pharmacol.* 2013; 75(1):26-35 (RR 0.94 (95% CI: 0.87-1.01) for aspirin use; RR 0.89 (95% CI: 0.74-1.08) for NSAID use); Baandrup L, Faber MT, Christensen J, et al. Nonsteroidal anti-inflammatory drugs and risk of ovarian cancer: systematic review and meta-analysis of observational studies. *Acta Obstet Gynecol Scand.* 2013; 92(3):245-255 (RR 0.93 (95% CI: 0.84-1.02) for aspirin use; RR 0.94 (95% CI: 0.84-1.06) for NSAID use).

²²¹ Trabert B, Ness RB, Lo-Ciganic WH, et al. Aspirin, nonaspirin nonsteroidal anti-inflammatory drug, and acetaminophen use and risk of invasive epithelial ovarian cancer: a pooled analysis in the Ovarian Cancer Association Consortium. *J Natl Cancer Inst.* 2014; 106(2):djt431, 5 (2014) (for aspirin, OR 0.91 (95% CI: 0.84-0.99); for NSAIDs, OR 0.90 (95% CI: 0.77-1.05)).

research is necessary to understand the mechanisms of ovarian cancer risk reduction by aspirin use.”²²² The authors reported the results of further study just this year, continuing to find a modest decrease in risk with daily aspirin use but not with other types of anti-inflammatories, and further contradicting the inflammation theory, “observ[ing] a consistently elevated ovarian cancer risk with frequent, long-duration use of aspirin and nonaspirin NSAIDs.”²²³ Moreover, the Wu 2009 study – on which plaintiffs’ experts have relied on the issue of dose-response – likewise found the opposite effect, reporting that, “contrary to the study hypothesis that NSAIDs may have chemopreventative effects by decreasing inflammation, we found that the risk of ovarian cancer *increased* significantly with increasing frequency and duration of NSAIDs use.”²²⁴ And Merritt (2008) additionally found risk reduction with the use of anti-inflammatories, concluding that “on balance, chronic inflammation does not play a major role in the development of ovarian cancer.”²²⁵ In sum, and as plaintiffs’ experts agree, studies of the effect of anti-inflammatory drugs on ovarian cancer are mixed at best, and some even show the reverse relationship – i.e., increased incidence of ovarian cancer with increased use of NSAIDs.²²⁶

Finally, “inflammation” is a broad term and does not inevitably lead to cancer. For example, pollen can lead to increased inflammation in the asthmatic lung, but it does not cause cancer. Thus, even if one finds inflammation in tissue, that does not mean that cancer inevitably or even likely follows from that. And if talc in fact caused cancer by causing inflammation, it would surely do so in patients who undergo pleurodesis (which entails the therapeutic injection of talc into the pleural cavity to cause beneficial scarring). Yet, there is no evidence that pleurodesis patients subsequently develop cancer as a result of the procedure. Plaintiffs’ expert Dr. Ghassan Saed has performed experiments – apparently for litigation purposes²²⁷ – to attempt to establish an inflammation-based mechanism by which talc could cause ovarian cancer. While I leave a detailed assessment of Dr. Saed’s efforts to other experts, I did review Dr. Saed’s report and his two depositions and was struck by the irregularities in his study, which render his results highly questionable. I also read the highly skeptical comments from the reviewers at *Gynecologic Oncology*, which rejected his manuscript.²²⁸ But even accepting the results of Dr. Saed’s study, they at best raise questions about the inflammation hypothesis that would have to be addressed through future *in vitro* and *in vivo* testing, as he effectively acknowledged at his

²²² *Id.*

²²³ Trabert B, Poole EM, White E, et al. Analgesic Use and Ovarian Cancer Risk: An Analysis in the Ovarian Cancer Cohort Consortium, *J. Nat’l Cancer Inst.* 2019; 111(2):137-145, 139-142 (emphasis added).

²²⁴ Wu 2009 (emphasis added).

²²⁵ Merritt 2008.

²²⁶ Singh Dep. 231:23-233:2 (“[NSAIDs] don’t consistently reduce the risk of ovarian cancer”); Kane Rep. at 9-13 (“[S]ome studies show[] a protective effect of anti-inflammatory drugs on the risk of developing carcinoma, although some studies have failed to show a protective effect.”); Blair Smith Rep. at 17-18 (describing studies that “looked at the effects of aspirin and nonsteroidal anti-inflammatory drugs (NSAIDs) on the risk of developing cancer” as “inconsistent”).

²²⁷ Saed Dep. Vol. I 62:16-63:7, 72:10-73:2, 178:14-21.

²²⁸ *Gynecologic Oncology* Email dated Sept. 19, 2018 re: GYN-18-1020: Final Decision.

deposition.²²⁹

VII. THE ASBESTOS LITERATURE DOES NOT SUPPORT THE THEORY THAT ASBESTOS ALLEGED TO BE IN COSMETIC TALC COULD CAUSE OVARIAN CANCER.

There are numerous problems with plaintiffs' experts' theory that asbestos is an accessory mineral present in cosmetic talc that causes ovarian cancer.

First, all of the problems addressed above with respect to plaintiffs' theories by which particulates in talcum powder could migrate to the ovaries would apply to asbestos fibers. And plaintiffs' experts' inhalation theories are all the more infirm with respect to asbestos particularly. Assuming talc contained asbestos, the larger burden of any inhaled asbestos should be seen in the lungs, which are directly exposed, rather than the ovaries, which would only be indirectly exposed, if at all. If that is the case, as Dr. Moorman testified, we should be seeing an epidemic of mesothelioma and lung cancer cases among cosmetic talc users.²³⁰ But no expert has identified any studies showing that mesothelioma or lung cancer is a risk of talc use, and I am not aware of any such studies. To the contrary, studies that have looked at talc miners and millers – who would presumably confront greater exposures to asbestos if it were present in talc given the occupational context – have not found any increased incidence of mesothelioma or lung cancer attributable to talc exposure in the mines or mills.²³¹ Notably, IARC emphasized this point, stating that there was “little or inconsistent evidence of an increased risk of cancer in the studies of workers occupationally exposed to talc,” where the potential for talc inhalation would be particularly significant, and that “studies of talc miners and millers were considered to provide the best source of evidence.”²³² And the body of literature investigating perineal talc use has focused on ovarian cancer, and not mesothelioma or lung cancer, which indicates that researchers have not even considered them worth investigating.

In addition to the lack of a plausible mechanism by which asbestos could reach the ovaries, there is also a lack of any reliable epidemiology supporting such a causal connection. There have been relatively few studies examining the association between asbestos exposure and

²²⁹ Saed Dep. Vol. II 542:16-25.

²³⁰ Moorman Dep. 112:7-15 (“Q. You would agree with me that if talcum powder, that is used in cosmetic talc products, is, in fact, contaminated with asbestos, then you would expect to see increased cancer incidence rates, for example, of mesothelioma, in cosmetic talc miners and millers; correct? . . . [A] I wouldn’t be surprised to see that, yes.”).

²³¹ Fiume 2015 at 119S (studies looking at occupational inhalational talc exposure do not show an increased risk of lung disease); Pira PE, Coggiola M, Ciocan C, et al. Mortality of Talc Miners and Millers from Val Chisone, Northern Italy: An Updated Cohort Study. *J Occup Environ Med.* 2017; 59(7):659-664 (concluding that there was a lack of association between exposure to asbestos-free talc, lung cancer, and mesothelioma in a cohort of talc miners and millers from Val Chisone, Italy); Wergeland E, Andersen A, Baerheim A. Morbidity and mortality in talc-exposed workers. *Am J Ind Med.* 1990; 17(4):505-513 (finding no elevated incidence of lung cancer or mesothelioma in a cohort of 94 talc miners and 295 talc millers).

²³² IARC Talc Monographs at 412.

ovarian cancer.²³³ Of the studies that have reported a statistically significant association between asbestos exposure and ovarian cancer, all looked at populations heavily exposed to asbestos in the workplace.²³⁴ As noted by the authors of a 2011 meta-analysis that included most of this research, studies examining the asbestos-ovarian cancer association have been “limited,” in part due to a “[s]mall number of cases” – i.e., “[m]uch fewer women than men have been exposed to asbestos, particularly in [the] more heavily exposed occupational settings” that have predominantly been examined.²³⁵ Although some of these studies show a statistically significant elevated risk, others do not, and the overall results are highly inconsistent.²³⁶ Moreover, the meta-analysis calculated an overall standardized mortality ratio (“SMR”) of 1.75 across 16 studies, which is not even a doubling of risk.²³⁷ The SMR in these studies ranged from 0.79 in a study of Polish women diagnosed with asbestosis (in which there was only one case of ovarian cancer across 490 exposed women) to 4.77 in a study of Italian women compensated for asbestosis (nine cases of ovarian cancer in 631 exposed women).²³⁸ Ten of the 16 studies reported SMRs lower than 2.0, none of them statistically significant.²³⁹

²³³ International Agency for Research on Cancer, Monographs on the Evaluation of Carcinogenic Risks to Humans Vol. 100C: Asbestos (Chrysotile, Amosite, Crocidolite, Tremolite, Actinolite, and Anthophyllite) 253 (2012) (“IARC Asbestos Monographs”) (observing that “the published literature examining the association between asbestos exposure and cancer of the ovaries is relatively sparse”).

²³⁴ Acheson ED, Gardner MJ, Pippard EC, Grime LP. Mortality of two groups of women who manufactured gas masks from chrysotile and crocidolite asbestos: a 40-year follow-up. *Br J Ind Med*. 1982; 39(4):344-348 (for gas mask workers exposed to crocidolite, SMR 2.75 (95% CI: 1.42-4.81)); Berry G, Newhouse ML, Wagner JC. Mortality from all cancers of asbestos factory workers in east London 1933-80. *Occup Environ Med*. 2000; 57(11):782-785 (for insulation workers, SMR 2.53 (95% CI: 1.16-4.80)); Camargo MC, Stayner LT, Straif K. Occupational exposure to asbestos and ovarian cancer: a meta-analysis. *Environ Health Perspect*. 2011; 119(9):1211-1217, 1216 (“Camargo 2011”) (meta-analysis “restricted to highly exposed women” reporting “findings . . . consistent with the hypothesis that exposure to asbestos is associated with an increased risk of ovarian cancer”); Germani D, Belli S, Bruno C, et al. Cohort mortality study of women compensated for asbestosis in Italy. *Am J Ind Med*. 1999; 36(1):129-134 (“Germani 1999”) (for cement works, SMR 5.40 (95% CI: 1.75-12.61); for textile works, SMR 5.26 (95% CI: 1.43-13.47); for all workers, SMR 4.77 (95% CI: 2.18-9.06)); IARC Asbestos Monographs at 256 (concluding that there is a causal association based “on five strongly positive cohort mortality studies of women with *heavy occupational exposure* to asbestos”) (emphasis added); Magnani C, Ferrante D, Barone-Adesi F, et al. Cancer risk after cessation of asbestos exposure: a cohort study of Italian asbestos cement workers. *Occup Environ Med*. 2008; 65(3):164-170 (for cement factory workers, SMR 2.27 (95% CI: 1.04-4.32)); Wignall BK, Fox AJ. Mortality of female gas mask assemblers. *Br J Ind Med*. 1982; 39(1):34-38. (“Wignall & Fox 1982”) (for gas mask workers, SMR 2.13).

²³⁵ Reid A, de Klerk N, Musk AW. Does exposure to asbestos cause ovarian cancer? A systematic literature review and meta-analysis. *Cancer Epidemiol Biomarkers Prev*. 2011; 20(7):1287-129, 1287 (“Reid 2011”).

²³⁶ *See id.* (“The relationship between asbestos exposure and ovarian cancer is not as well understood.”); *see also id.* at 1293 fig. 1 (chart showing the 16 studies, 12 of which did not report statistically significant results); *id.* at 1294 (“The present study has shown that 4 of 14 cohort studies reported a statistically significant excess rate for ovarian cancer among women exposed to asbestos. Of the remaining 10 studies, 5 reported a tendency to excess but failed to reach statistical significance and 5 reported rates that were similar to those of their reference populations. Strong evidence of consistency was not observed among these studies, although no study reported any protective effect.”); IARC Asbestos Monographs at 254-56 (describing cohort studies and case-control studies).

²³⁷ Reid 2011 at 1287 (abstract).

²³⁸ *Id.* at 1289.

²³⁹ *Id.* at 1289-90.

Addressing this body of research, the authors of the 2011 meta-analysis noted above acknowledged an IARC Working Group's recent conclusion that a causal association between asbestos exposure and ovarian cancer had been established,²⁴⁰ but criticized that conclusion as "premature and not wholly supported by the evidence."²⁴¹ The authors also emphasized that "[s]trong evidence of consistency was not observed among these studies,"²⁴² pointing out that "no significant excess risk was reported among those studies that examined the incidence of ovarian cancer where cases were ascertained from a cancer registry" as opposed to from death certificates, which is significant because there is evidence of misclassification in death certificates.²⁴³ The authors also noted that many studies involved too few women to address dose-response.²⁴⁴ With respect to the studies that did address dose-response, the findings "were inconsistent"; no study showed a "statistically significant trend of ovarian cancer with degree of asbestos exposure"; and "there was no evidence of a significant trend across studies as grouped exposure increased."²⁴⁵ In light of these conclusions, I find it puzzling that some of plaintiffs' experts claim reliance on this meta-analysis for the conclusion that "[a]sbestos has been established as a cause of . . . epithelial ovarian cancer."²⁴⁶ The study itself claims the opposite.

In addition, no study has found that asbestos exposure comparable to that allegedly sustained by women who use cosmetic talc causes an increased risk of ovarian cancer. Specifically, the occupational studies described above include workers who worked with raw asbestos as part of their job for months or years at a time.²⁴⁷ And as Dr. Moorman testified, the level of exposure is qualitatively different in the occupational context from the exposure to the genital areas alleged by plaintiffs.²⁴⁸ I am not aware of any study showing that the use of cosmetic talc would result in asbestos exposures comparable to occupational asbestos exposure even if the cosmetic talc contained trace amounts of asbestos, as claimed by plaintiffs' experts. Thus, the results of occupational studies cannot be reliably extrapolated to exposure scenarios such as cosmetic talc use.

The results of the occupational asbestos studies also cannot be used to support causation of ovarian cancer in cosmetic talc users because the studies have predominantly examined exposure to crocidolite asbestos or some combination of crocidolite and chrysotile, and

²⁴⁰ IARC Asbestos Monographs at 256.

²⁴¹ Reid 2011 at 1294.

²⁴² *Id.*

²⁴³ *Id.* at 1293-94.

²⁴⁴ *Id.* at 1294.

²⁴⁵ *Id.*

²⁴⁶ McTiernan Rep. at 57; McTiernan Dep. 268:21-25; Moorman Dep. 108:6-109:10, 111:7-14.

²⁴⁷ Germani 1999 at 129 ("Subjects included in this cohort were certainly exposed to high levels of asbestos."); Wignall & Fox 1982 at 35 (subjects were "directly exposed to asbestos dust," and "by the end of the working day they were covered in fluff from the pads" they worked on).

²⁴⁸ Moorman Dep. 106:4-17.

crocidolite is regarded as the most potent form of asbestos.²⁴⁹ I note that studies examining the composition of talc-based body powders have not observed crocidolite fibers.²⁵⁰

Even assuming exposure to asbestos of some variety and in certain exposure scenarios can cause ovarian cancer, no science supports the notion – put forth by a number of plaintiffs’ experts – that “any exposure” to asbestos can cause ovarian cancer.²⁵¹ To the contrary, as suggested by the discussion of occupational studies above, the available data suggest that very significant exposure would be necessary. This conclusion is strongly supported by the fact that the few studies that have looked at environmental asbestos exposure (in women living in an asbestos mining town and family members of male asbestos factory workers) rather than occupational exposure do not show a statistically significant increased rate of ovarian cancer or increased mortality from ovarian cancer.²⁵² For example, in one study of women who lived near or worked in a crocidolite mine and who had cumulative exposures of up to 40 fiber/cc-years, there was no increased risk of ovarian cancer.²⁵³ Even these studies are not perfectly analogous to the asbestos exposure alleged through perineal use of cosmetic talc. But they underscore the fact that not every circumstance where there is asbestos exposure, even crocidolite exposure, leads to elevated ovarian cancer risk.

Finally, I note that studies addressing whether there is an association between asbestos and ovarian cancer have cautioned that to the extent there is an observed association, it may be inflated by the misclassification of other diseases such as mesothelioma as ovarian cancer on subjects’ death certificates.²⁵⁴ As these studies have explained, it has only recently become

²⁴⁹ Reid 2011 at 1291 (noting that crocidolite is “the most mesotheliogenic of the asbestos fibers”); IARC Asbestos Monographs at 242 (discussing studies finding no excess mortality for cancer of the pharynx in amosite asbestos miners but an excess mortality rate for crocidolite miners and a higher risk rate for factory workers exposed to crocidolite than workers exposed to chrysotile); *id.* at 254-55 (relying on studies that involved crocidolite and, in some cases also chrysotile).

²⁵⁰ IARC Talc Monographs at 303-05.

²⁵¹ *E.g.*, Moorman Dep. 75:22-76:3.

²⁵² Reid A, Heyworth J, de Klerk NH, Musk B. Cancer Incidence Among Women and Girls Environmentally and Occupationally Exposed to Blue Asbestos at Wittenoom, Western Australia. *Int J Cancer*. 2008; 122(10):2337-2344 (study of 2,552 women living in an asbestos mining town in Australia (reporting a “minimum estimate” standard incidence ratio (“SIR”) of 1.11 (95% CI 0.39-1.84) and “maximum estimate” SIR of 1.43 (95% CI 0.50-2.37), depending on the method used to determine when to stop following women in the study; a standard incidence ratio reports the ratio of the number of cases of cancer found in the studied population relative to the expected number of such cases as derived from broader population statistics rather than a control group, and a standard mortality ratio (“SMR”) employs a similar comparison but focuses on rates of death rather than incidence of disease); Reid A, Segal A, Heyworth JS, et al. Gynecologic and breast cancers in women after exposure to blue asbestos at Wittenoom. *Cancer Epidemiol Biomarkers Prev*. 2009; 18(1):140-147 (“Reid 2009”) (analysis of ovarian cancer incidence in the same population (SIR 1.18 (95% CI: 0.45-1.91))); Ferrante D, Bertolotti M, Todesco A, et al. Cancer mortality and incidence of mesothelioma in a cohort of wives of asbestos workers in Casale Monferrato, Italy. *Environ Health Perspect*. 2007; 115(10):1401-1405 (study of family members of men employed at an asbestos-cement factory in Italy (SMR 1.42 (95% CI: 0.71-2.54))).

²⁵³ Reid 2009.

²⁵⁴ Reid 2011 at 1287 (explaining that many studies ascertained mortality from death certificates, “[t]he accuracy of [which] has been questioned repeatedly”; observing that it has been “particularly difficult to distinguish

technologically possible to reliably “distinguish pathologically between peritoneal mesothelioma and ovarian cancer.”²⁵⁵ As the authors of one meta-analysis explained, even a low number of misclassification errors can drastically affect reported mortality rates given the limited number of ovarian cancer cases in the studies.²⁵⁶ Notably, the authors of that meta-analysis did not find a statistically significant ovarian cancer incidence when looking only at studies that obtained ovarian cancer diagnoses from cancer registries rather than death certificates.²⁵⁷

VIII. HEALTH CANADA AND THE ANALYSIS BY MOHAMED TAHER

I understand that plaintiffs’ experts have begun relying on the recent draft screening assessment of talc by Health Canada²⁵⁸ and the related analysis by Mohamed Taher²⁵⁹ and others. I have reviewed these documents, and they are consistent with the opinions I set forth above and do not support a conclusion that talc causes ovarian cancer.

The Health Canada (“HC”) assessment raises a number of new issues that if anything further cloud the scientific picture and erect further obstacles to a conclusion that perineal talcum powder use causes ovarian cancer. For example, the document highlights other sources of exposure to talc. Specifically, it states that “a potential concern for human health has been identified” for perineal exposure to talc “from use of various self-care products (e.g., body powder, baby powder, diaper and rash creams, genital antiperspirants and deodorants, body wipes, bath bombs).”²⁶⁰ The document further notes that talc is present in approximately 8,500 self-care products, in addition to being found as a food additive, in medications, and many other consumer and commercial products.²⁶¹

In other respects, the HC assessment largely covers old ground. Indeed, as part of the overall assessment, there was a health effects assessment that relied on the work of other

between peritoneal mesothelioma and ovarian serous carcinoma”). Notably, this meta-analysis found that “no significant excess risk was reported among those studies that examined the incidence of ovarian cancer where cases [were] ascertained from a cancer registry.” *Id.* at 1294.

²⁵⁵ Camargo 2011 at 1216; *see id.* at 1215 (observing that earlier meta-analyses concluded that they could not conclude causality despite evidence of an association because of concerns about tumor misclassification and failure to account for known risk factors).

²⁵⁶ Reid 2011 at 1294 (“Where disease outcome was identified from the cause of death as listed on the death certificate, given the small numbers of ovarian cancer cases in each study, even misclassification of 1 cancer may exert a large impact on the exposure effect.”).

²⁵⁷ *Id.* (“The meta-analysis of those studies that examined ovarian cancer as determined on the death certificate reported an excess risk. In contrast, no significant excess risk was reported among those studies that examined the incidence of ovarian cancer where cases [were] ascertained from a cancer registry.”).

²⁵⁸ *See* Health Canada, Draft screening assessment talc (Mg₃H₂(SiO₃)₄), Chemical Abstracts Service Registry Number 14807-96-6, <https://www.canada.ca/content/dam/eccc/documents/pdf/pded/talc/Draft-screening-assessment-talc.pdf> (“HC Assessment”).

²⁵⁹ Taher 2018.

²⁶⁰ *See* HC Assessment at iii.

²⁶¹ *See id.* at 6.

agencies (e.g., IARC and the United States Environmental Protection Agency) and a literature search. With regard to perineal exposure to talc, the HC assessment cites IARC's Group 2B classification (possibly carcinogenic to humans), and the CIR Expert Panel (2013) that "determined that there is no causative relationship between cosmetic use of talc in the perineal area and ovarian cancer[.]"²⁶² The assessment notes that rodents are poor experimental models for perineal studies and that "animal data are very limited."²⁶³ In terms of human studies, it cites several meta-analyses, including those cited by plaintiffs' experts, as well a newer unpublished manuscript by Taher (2018).²⁶⁴

In a discussion of mode of action, the HC assessment states that "the etiology of most ovarian tumors, in general, has not been well established."²⁶⁵ While it notes that talc particles instilled into the uterus or to a lesser extent the vagina can be found in the ovaries of rats, no similar translocation occurred in studies of rabbits and monkeys.²⁶⁶

The HC assessment found no health effects of ingested talc or dermally applied talc. With regard to inhalation, it cites the Danish EPA (2016) "note that talc is not absorbed via inhalation."²⁶⁷ It points to potential for retention of talc in the lungs as leading to talc-induced pneumoconiosis or talcosis in certain industrial settings.²⁶⁸ The assessment considers the NTP rat study of inhalation (1993) of talc with doses as high as 18 mg/m³.²⁶⁹ It cites conclusions of a symposium of experts from the NTP as well as academic, industry and government experts who evaluated the NTP study results and reached a consensus that because the dose was so high, the neoplasms seen were not relevant to human health risk assessment.²⁷⁰ The lung tumors seen in only female rats were judged to be attributed to the general particle effects of dust, and not specific to talc, and the pheochromocytomas were attributed to tissue hypoxia, and not talc per se.²⁷¹

The HC assessment also addresses the issue of asbestos, noting that selective mining, ore processing, and benefaction can remove many of the impurities from mined talc, that United States Pharmacopeia ("USP") requires the absence of asbestos, and that cosmetic grade talc should comply with USP standards.²⁷² Further, "health effect studies on cosmetic-grade talc

²⁶² *Id.* at 15.

²⁶³ *Id.*

²⁶⁴ *Id.* at 16-17.

²⁶⁵ *Id.* at 18.

²⁶⁶ *Id.* at 18-19.

²⁶⁷ *Id.* at 11.

²⁶⁸ *Id.*

²⁶⁹ *Id.* at 12.

²⁷⁰ *Id.* at 13.

²⁷¹ *Id.*

²⁷² *Id.* at 3.

cited in this assessment were considered to be free of asbestos.”²⁷³

At the end of the day, the HC assessment failed to conclude that talc use causes ovarian cancer,²⁷⁴ and plaintiffs’ experts misread the report to the extent they contend that it did.²⁷⁵

HC’s overall assessment appears to rely heavily on the unpublished meta-analysis by Taher and cites Taher’s Bradford Hill analysis extensively. HC’s extensive reliance on Taher is unusual and problematic. First, the manuscript has not gone through the peer-review process for publication. There is no way to know, at this point, whether and where it will ultimately be published, but even if it is, there is no assurance that the findings and conclusions will be the same once reviewers and editors have provided feedback. Second, it seems unusual to rely on the Taher paper in that there is no novelty and the studies reviewed in it have been repeatedly evaluated by other authors, whose results have, in fact, been through the peer-review process.

As a rationale for performing the study, Taher et al. cite “increasing concern that perineal exposure to talc, a commonly used personal care product, might be associated with an increased risk of ovarian cancer.”²⁷⁶ Further, they note that “the data describing this association is somewhat inconsistent.”²⁷⁷ Again, it is not clear why another meta-analysis of the same underlying data would be expected to solve past inconsistency.

In reviewing animal studies, Taher et al. note that “data from the animal studies [that] considered various routes of talc administration are inconsistent. . . .”²⁷⁸ They cite the NTP rat study (1993), findings that HC stated “were not relevant to human health risk assessment” and were not specific to talc.²⁷⁹ Taher et al. use the NTP study as evidence that, “overall, the available [sic] experimental data suggest irritation, followed by oxidative stress and inflammation, may play be involved [sic] in local carcinogenic effects of talc in the ovaries.”²⁸⁰ Taher et al. note that “data on talc migration in the genital tract of animals is inconsistent, but could not exclude such possibility.”²⁸¹

The Hill analysis performed by Taher et al. also has serious flaws. With respect to strength of association, the authors note that 6 of 30 studies showed statistically significant risk

²⁷³

Id.

²⁷⁴

Id. at 28 (concluding that talc use is a “potential concern for human health”).

²⁷⁵

Moorman Dep. 145:19-21.

²⁷⁶

Taher 2018 at 2.

²⁷⁷

Id. at 3.

²⁷⁸

Id. at 22.

²⁷⁹

HC Assessment at 3.

²⁸⁰

Taher 2018 at 23.

²⁸¹

Id. at 24.

of 1.5 or greater and that none of the cohort studies found statistically significant associations.²⁸² While these findings show marked inconsistency, they are not supportive of a strong association.

With regard to consistency, Taher et al. cite 15 of 30 studies with positive, significant associations.²⁸³ Obviously, the same number do not show such an association, which is further evidence against consistency.

As to temporality, Taher et al. state that “the participants recalled that exposure to talc preceded the reported outcome,”²⁸⁴ which ignores the fact that this recall is retrospective rather than prospective.

Regarding biologic gradient, the cited evidence is that 6 of 12 studies showed a significant dose-response trend,²⁸⁵ which is again evidence of the inconsistency of the study findings, and is in any event wrong given that the cited positive studies included several that did not find a dose response with cumulative use, such as Mills 2004 and Rosenblatt 2011. Moreover, at a later point in the paper, the authors acknowledge that “conflicting findings were reported on the nature of the exposure-response relationship” and that a possible increasing trend is hampered by “a high degree of uncertainty surrounding many of the risk estimates.”²⁸⁶

For experimentation, there are no cited human studies and no tests of animal models of perineal talc and ovarian cancer. The authors again cite the NTP rat study,²⁸⁷ which remains problematic for the reasons discussed previously.

The analysis of analogy relies on supposed similarities of talc and asbestos and the belief that there are histologic similarities of ovarian cancer and mesothelioma, and that these purported similarities have some bearing on talc causing cancer (even though Taher et al. state that “talc is not genotoxic”).²⁸⁸

In the discussion, the authors note subgroup differences they observed by ethnicity, menopausal state, and tubal ligation. But they go on to note that these three subgroup analyses (ethnicity, menopausal state and pelvic surgery) showed considerable heterogeneity that “might have had an impact on the results.”²⁸⁹

²⁸² *Id.* at 25.

²⁸³ *Id.*

²⁸⁴ *Id.* at 26.

²⁸⁵ *Id.*

²⁸⁶ *Id.* at 37.

²⁸⁷ *Id.* at 26.

²⁸⁸ *Id.* at 27.

²⁸⁹ *Id.* at 30.

Taher et al. reaffirmed the effect of study design on results, with, once again, positive findings only in population-based case-control studies, but not in those with hospital-based controls [0.96 (0.78-1.17)] or in cohort studies [1.06 (0.9-1.25)]. They also highlighted previously demonstrated paradoxical findings, such as lower risk of cancer with longer use of talc and the “expected, yet non-significant, negative association” with talc applied to diaphragms.²⁹⁰ While they noted a protective effect of tubal ligation [0.64 (0.45-0.92)], they acknowledged incoherent findings of no significant effect of hysterectomy [0.89 (0.54-1.46)] and a small, non-significant higher risk in women with both tubal ligation and hysterectomy [1.06 (0.78-1.42)].²⁹¹

In the conclusion, the authors state that their evaluation is consistent with that of IARC in 2010 and that it “indicates that perineal exposure to talc powder is a possible cause of ovarian cancer in humans.”²⁹² In other words, eight years later their conclusion is the same – that the evidence shows only that it is possible, not probable, that perineal talc use causes ovarian cancer. Thus, Taher does not add anything new to the body of literature addressed in this report.

IX. CONCLUSION

It is my opinion, based on my qualifications and my extensive review of the available epidemiology studies and scientific literature, that there is not sufficient evidence to conclude that there is a causal relationship between perineal talcum powder exposure and ovarian cancer. The epidemiologic literature shows a non-existent association or, at most, a small association between perineal talc use and ovarian cancer that constitutes only weak epidemiologic evidence that can be attributed to bias, confounding or chance. The studies are inconsistent across study designs and within study designs, as cohort and hospital-based case-control studies do not show a statistically significant association and only a subset of the population-based case-control studies demonstrate a statistically significant association. Moreover, the case-control studies do not show any consistent evidence of a dose-response relationship, and there is a complete lack of evidence for dose-response in the cohort studies. The theories pertaining to biological plausibility are entirely speculative and have not been demonstrated in the epidemiology studies or scientific literature; rather, relevant science contradicts the purported theories of talcum powder transport and development of ovarian cancer by inflammation. Finally, the assertion that asbestos present in talc – even if true – causes ovarian cancer is problematic on the grounds that there is a lack of a plausible mechanism by which asbestos could reach the ovaries and also a lack of any reliable epidemiology supporting such a causal connection.

All of the opinions in this report are stated to a reasonable degree of scientific certainty.

²⁹⁰ *Id.* at 32.

²⁹¹ *Id.* at 33.

²⁹² *Id.* at 49.

APPENDIX A

Appendix A: Sample Of Pre-2014 News Articles Addressing Posited Link Between Talc Use And Ovarian Cancer

- [1] Boston Globe, Study links talc use to ovarian cancer (Aug. 6, 1982)
- [2] New York Times, Talcum company calls study on cancer link inconclusive (August 12, 1982) (“A major talcum powder manufacturer, while criticizing a recent study linking the use of talcum powder by women to ovarian cancer, said it would further investigate any possible relationship between cosmetic-grade talc and the development of disease.”)
- [3] New York Times, Personal Health, (July 03, 1985) (“A number of studies have indicated that exposure to talc, the principal ingredient in talcum powder, increases the risk. This may be because talc is usually contaminated with particles of asbestos, which are known cancer-promoting substances.”)
- [4] Washington Post, Fighting Ovarian Cancer: Doctors Don’t Know Who’s at Risk, or Why (May 30, 1989) (“One theory is that asbestos containing talc may account for some of the increased rate of disease in western countries that emphasize personal hygiene.”)
- [5] San Francisco Chronicle, Use powder with caution (July 31, 1990)
- [6] Business Times, Safe Newways option to looking beautiful (Feb 17, 1991) (“According to him, the talc in talcum powder and colour cosmetics have a similar molecular structure as asbestos which can cause ovarian cancer while the alcohol content in mouthwash can cause throat and stomach cancer.”)
- [7] Philadelphia Inquirer, Cancer risk and talcum linked; for women who used talc for a lifetime, the risk increased 300% (July 1, 1992)
- [8] Houston Chronicle, Use of talc on panties tied to cancer (July 1, 1992)
- [9] Los Angeles Daily News, Study says talc use increases women’s risk of ovarian cancer (July 1, 1992)
- [10] Seattle Times, Study links talcum use, ovarian cancer (July 1, 1992)
- [11] St. Louis Post-Dispatch, Talcum powder, ovarian cancer linked (July 2, 1992)
- [12] The Independent, Condom talc risks, (Mar. 21, 1995) (“They point out that if it gets into the female reproductive tract, talc may result in fallopian tube fibrosis and infertility, and it may also be linked to ovarian cancer.”)
- [13] Philadelphia Inquirer, Breaking the silence: women take on a deadly stalker ovarian cancer will kill more than 14,000 this year. Activists are targeting ignorance and complacency (May 18, 1997) (“using talcum powder on the genital area, among other factors, increase the risk”)
- [14] Chicago Tribune, Survivor speaks out on ovarian cancer (Aug. 22, 1997) (“It is more prevalent in women who have had no pregnancies, have taken fertility drugs, had an early menopause, eaten a high-fat diet or frequently used talcum powder in the genital area.”)
- [15] Harvard Women’s Health Watch, Ovarian cancer (Oct. 1998) (“Several studies also suggest that two other practices -- a high-fat diet and long-term use of talcum powder on the genital region -- increase the likelihood of ovarian cancer. Researchers theorize that talc travels into the vagina, cervix, uterus, and ultimately to the ovaries, where it may prompt cellular changes and, later, cancer.”)
- [16] Chicago Tribune, Talcum takes a tumble (July 14, 1999)

Appendix A: Sample Of Pre-2014 News Articles Addressing Posited Link Between Talc Use And Ovarian Cancer

[17] HealthCommunities.com, Ovarian Cancer Risk Factors, (August 14, 1999) (“Some research indicates that there is an increased risk of ovarian cancer among women who apply talcum powder to the genital area or sanitary napkins.”)

[18] Cleveland Plain Dealer, Possible link between talcum powder, ovarian cancer (Aug. 17, 1999)

[19] CNN.com, Ovarian cancer: It’s less common than you think (Sept. 3, 1999) (“The ruling on talcum powder is still unclear, as well. In the past, talcum powder was sometimes contaminated with asbestos, a known cancer-causing mineral.”)

[20] Chicago Tribune, How much do you know about ovarian cancer? (Sept. 15, 1999) (“Some research has shown a possible link between talcum powders used in the genital region and an increased risk of ovarian cancer.”)

[21] Las Vegas Review Journal, Some promising treatments being developed for ovarian cancer (Nov. 25, 1999) (“In support of this, scientists point to several studies showing that talcum powder, which some women put on diaphragms or on genital skin, can raise ovarian cancer risk.”)

[22] Philadelphia Inquirer, Don’t worry about talc in eye shadow, face powder (Jan. 16, 2000) (“That doesn’t mean not to use eyeshadow or face powder with talc, but it absolutely means to consider never using it on your children, or vaginally on yourself.”)

[23] St. Louis Dispatch, Can genital warts cause cancer? (Apr. 26, 2000) (“Talc, the main ingredient of talcum powder, has been linked to ovarian cancer when used as a vaginal dusting powder.”)

[24] USA Today, Estrogen may join carcinogen list (Dec. 8, 2000) (“Research suggests that talcum powder used in feminine hygiene increases the risk of ovarian cancer.”)

[25] New York Post, Feds eye new causes of cancer (Dec. 9, 2000) (“Meanwhile, talc has been linked to an increased risk of ovarian cancer in women who use it for feminine hygiene”)

[26] Los Angeles Times, Study Suggests Aspirin May Help Prevent Ovarian Cancer (Mar. 12, 2001) (“Ovarian cancer might be preceded by inflammation due to pelvic inflammatory disease or the use of talcum powder, both of which are linked to an increased risk of the disease.”)

[27] The Guardian, Is your beauty regime damaging your health? Once again, studies are suggesting that chemicals used in cosmetics such as talc could increase the risk of cancer. Just how worried should we be . . . (Sept. 11, 2007)

[28] National Health Service, Talcum powder and ovarian cancer (Sept. 29, 2008) (“Although this study has shortcomings and does not provide strong evidence of a causal link in itself, when put in context with other studies on this topic, it adds to the body of evidence suggesting that use of talc may be linked to ovarian cancer.”)

[29] Washington Post, Cellphones are possible cancer risk, WHO says (June 1, 2011) (“Other substances that the group has categorized as ‘possibly carcinogenic’ include talcum powder, which has been possibly linked to ovarian cancer).

Appendix A: Sample Of Pre-2014 News Articles Addressing Posited Link Between Talc Use And Ovarian Cancer

[30] Cancer Weekly, Researchers from Pennsylvania State University Detail New Studies and Findings in the Area of Ovarian Cancer (Nov. 8, 2011) (“A number of observational studies (largely case-control) conducted over the last two decades suggest an association between use of talc powders on the female perineum and increased risk of ovarian cancer”)

[31] Women’s Health Weekly, Recent findings from University of Queensland highlight research in ovarian cancer (Apr. 5, 2012) (“Use of talcum powder in the perineal area has been associated with an increased risk of ovarian cancer”)

[32] The Guardian, Ovarian cancer: a call to arms: Susan Gubar was when she was diagnosed with ovarian cancer. It wasn't exactly tragedy - her daughters fully grown, her work complete. The tragedy is the ignorance which still surrounds this neglected disease (Sept. 1, 2012) (“Asbestos exposure, talcum powder, hormone replacement therapy, and fallout from nuclear testing have all been linked to ovarian cancer”)

[33] Huffington Post, Health Myths: 7 medical misconceptions exposed (May 16, 2013) (“Harvard researchers recently found that postmenopausal women who use talcum powder in their genital area just once a week increase their risk of developing endometrial cancer by 24 percent. Another Harvard study found a strong link between talcum powder use and ovarian cancer (it can increase the risk of developing the cancer by up to 40 percent.”)

[34] Daily Mail, Women who regularly use talcum powder increase their risk of ovarian cancer by 24% (June 18, 2013) (The researchers analysed data from 8,525 women diagnosed with ovarian cancer and compared talcum powder use with that of 9,800 women who remained cancer-free. The results, published in the journal Cancer Prevention Research, showed regularly applying the powder particles after bathing or showering raised the risk of an ovarian tumour by 24 per cent.”)

[35] Daily Mail (UK), Talc can raise ovarian cancer risk by quarter (June 19, 2013)

[36] The Sydney Morning Herald, Surprising cancer causes, (Aug. 02, 2013) (“Researchers have found a link between frequent use of talcum powder “for intimate personal hygiene” and ovarian cancer. The results published in the journal Cancer Prevention Research showed regularly applying the powder particles after bathing or showering raised the risk of an ovarian tumour by 24 per cent.”)

[37] Rapid City Journal, South Dakota jury ties talc powder to cancer risk (Oct. 05, 2013) (“A federal jury in Sioux Falls has found that a woman's use of Johnson & Johnson products that contained talcum contributed to her ovarian cancer.”)

[38] Reuters Legal, Johnson & Johnson failed to warn of possible talc-cancer link: jury (Oct. 8, 2013)

APPENDIX B

Materials Reviewed and Considered by Dr. Gregory Diette, M.D., M.H.S.

Expert References

Expert Report of Michael M. Crowley, Ph.D., Nov. 12, 2018 (MDL No. 2328)

Expert Report of William E. Longo, Ph.D, and Mark W. Rigler, Ph.D., Nov. 14, 2018

Expert Report of Sarah E. Kane, M.D., Nov. 15, 2018 (MDL No. 2738)

Expert Report of Rebecca Smith-Bindman, M.D., Nov. 15, 2019 (MDL No. 2738)

Expert Report of Alan Campion, Ph.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Arch Carson, M.D., Ph.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Daniel L. Clarke-Pearson, M.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Robert B. Cook, Ph.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of David Kessler, M.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Mark Krekeler, Ph.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Shawn Levy, Ph.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Anne McTiernan, M.D., Ph.D., Nov. 16, 2019 (MDL No. 2738)

Expert Report of Patricia Moorman, M.S.P.H., Ph.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Laura Plunkett , Ph.D., D.A.B.T., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Ghassan Saed, Ph.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Sonal Singh, M.D., M.P.H., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Jack Siemiatycki, M.Sc., Ph.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Ellen Blair Smith, Nov. 16, 2018 (MDL No. 2738)

Expert Report of Judith Wolf, M.D., Nov. 16, 2018 (MDL No. 2738)

Expert Report of April Zambelli-Weiner, Ph.D., M.P.H., Nov. 16, 2018 (MDL No. 2738)

Expert Report of Judith Zelikoff, Ph.D., Nov. 16, 2018 (MDL No. 2738)

Deposition of Sonal Singh, M.D., M.P.H., Jan. 16, 2019 (MDL No. 2738)

Deposition of Anne McTiernan, Jan. 28, 2019 (MDL No. 2738)

Deposition of Patricia Moorman, M.S.P.H., Ph.D. Jan. 25, 2019 (MDL No. 2738)

Materials Reviewed and Considered by Dr. Gregory Diette, M.D., M.H.S.

Deposition of Ghassan Saed, Ph.D., Jan. 23, 2019 (MDL No. 2738)

Deposition of Ghassan Saed, Ph.D., Feb. 14, 2019 (MDL No. 2738)

Deposition of Jack Siemiatycki, Jan. 31, 2019 (MDL No. 2738)

Deposition of Rebecca Smith-Bindman, M.D., Feb. 7, 2019 (MDL No. 2738)

Deposition of Rebecca Smith-Bindman, M.D., Feb. 8, 2019 (MDL No. 2738)

Deposition of April Zambelli-Weiner, Ph.D., Jan. 11, 2019 (MDL No. 2738)

Deposition of April Zambelli-Weiner, Ph.D., Feb. 7, 2019 (MDL No. 2738)

Gynecologic Oncology Email dated Sept. 19, 2018 re: GYN-18-1020: Final Decision (Ex. 35 to the Deposition of Ghassan Saed, Ph.D., Feb. 14, 2019 (MDL No. 2738))

Scholarly References

Acheson ED, Gardner MJ, Pippard EC, Grime LP. Mortality of two groups of women who manufactured gas masks from chrysotile and crocidolite asbestos: a 40-year follow-up. *Br J Ind Med.* 1982; 39(4):344-348

Aday LA, Cornelius LJ. *Designing and Conducting Health Surveys: A Comprehensive Guide.* 3rd ed. San Francisco, CA: 2006

Alberg AJ, Moorman PG, Crankshaw S, et al. Socioeconomic Status in Relation to the Risk of Ovarian Cancer in African-American Women: A Population-Based Case-Control Study. *Am J Epidemiol.* 2016; 184(4):274-283

Anand P, Kunnumakkara AB, Sundaram C, et al. Cancer is a preventable disease that requires major lifestyle changes. *Pharm Res.* 2008; 25(9):2097-2116

Andrade C. Understanding Relative Risk, Odds Ratio, and Related Terms. *J Clin Psychiatry.* 2015; 76(7):e857-861

Baandrup L, Faber MT, Christensen J, et al. Nonsteroidal anti-inflammatory drugs and risk of ovarian cancer: systematic review and meta-analysis of observational studies. *Acta Obstet Gynecol Scand.* 2013; 92(3):245-255

Berge W, Mundt K, Luu H, Boffetta P. Genital Use of Talc and Risk of Ovarian Cancer: A Meta-Analysis. *Eur J Cancer Prev.* 2018; 27(3):248-257

Berry G, Newhouse ML, Wagner JC. Mortality from all cancers of asbestos factory workers in east London 1933-80. *Occup Environ Med.* 2000; 57(11):782-785

Boorman GA, Seely JC. The lack of an ovarian effect of lifetime talc exposure in F344/N rats and B6C3F1 mice. *Regul Toxicol Pharmacol.* 1995; 21(2):242-243.

Materials Reviewed and Considered by Dr. Gregory Diette, M.D., M.H.S.

Bonovas S, Filioussi K, Sitaras NM. Do nonsteroidal anti-inflammatory drugs affect the risk of developing ovarian cancer? A meta-analysis. *Br J Clin Pharmacol*. 2005; 60(2):194-203

Booth M, Beral V, Smith P. Risk factors for ovarian cancer: a case-control study. *Br J Cancer*. 1989; 60(4):592-598

Camargo MC, Stayner LT, Straif K. Occupational exposure to asbestos and ovarian cancer: a meta-analysis. *Environ Health Perspect*. 2011; 119(9):1211-1217

Chang S, Risch HA. Perineal Talc Exposure and Risk of Ovarian Carcinoma. *Cancer*. 1997; 79(12):2396-2401

Chen Y, Wu PC, Lang JH, et al. Risk factors for epithelial ovarian cancer in Beijing, China. *Int J Epidemiol*. 1992; 21(1):23-29

Chlebowski RT, Hendrix SL, Langer RD, et al. Influence of estrogen plus progestin on breast cancer and mammography in healthy postmenopausal women: the Women's Health Initiative Randomized Trial. *JAMA*. 2003; 289(24):3243-3253

Colditz GA, Hankinson SE. The Nurses' Health Study: lifestyle and health among women. *Nat Rev Cancer*. 2005; 5(5):388-396

Cook LS, Kamb ML, Weiss NS. Perineal Powder Exposure and the Risk of Ovarian Cancer *Am J Epidemiol*. 1997; 145(5):459-465

Cramer DW, Liberman RF, Titus-Ernstoff L, et al. Genital Talc Exposure and Risk of Ovarian Cancer. *Int J Cancer*. 1999; 81(3):351-356

Cramer DW, Titus-Ernstoff L, McKolanis JR, et al. Conditions associated with antibodies against the tumor-associated antigen MUC1 and their relationship to risk for ovarian cancer. *Cancer Epidemiol Biomarkers Prev*. 2005; 14(5):1125-1131

Cramer DW, Vitonis AF, Terry KL, et al. The Association Between Talc Use and Ovarian Cancer: A Retrospective Case-Control Study in Two US States. *Epidemiology*. 2016; 27(3):334-346

Cramer DW, Welch WR, Berkowitz RS, Godleski JJ, Presence of talc in pelvic lymph nodes of a woman with ovarian cancer and long-term genital exposure to cosmetic talc. *Obstet Gynecol*. 2007; 110(2 Pt 2):498-501

Cramer DW, Welch WR, Scully RE, Wojciechowski CA. Ovarian cancer and talc: a case-control study. *Cancer*. 1982; 50(2):372-376

Cramer DW, Xu H. Epidemiologic evidence for uterine growth factors in the pathogenesis of ovarian cancer. *Ann Epidemiol*. 1995; 5(4):310-314

Elwood JM. Causal Relationships in Medicine: A Practical System for Critical Appraisal. Oxford: 1988, 163-182

Materials Reviewed and Considered by Dr. Gregory Diette, M.D., M.H.S.

Endo-Capron S, Renier A, Janson X, et al. In vitro response of rat pleural mesothelial cells to talc samples in genotoxicity assays (sister chromatid exchanges and DNA repair). *Toxicol In Vitro*. 1993; 7(1):7-14

Ferrante D, Bertolotti M, Todesco A, et al. Cancer mortality and incidence of mesothelioma in a cohort of wives of asbestos workers in Casale Monferrato, Italy. *Environ Health Perspect*. 2007; 115(10):1401-1405

Fiume MM, Boyer I, Bergfeld WF, et al. Safety Assessment of Talc as Used in Cosmetics. *Int J Toxicol*. 2015; 34(1 Suppl):66S-129S

Fowler FJ Jr. *Survey Research Methods*. 5th ed. Thousand Oaks, CA: 2014

Gates MA, Rosner BA, Hecht JL, Tworoger SS. Risk Factors for Epithelial Ovarian Cancer by Histologic Subtype. *Am J Epidemiol*. 2010; 171(1):45-53

Gates MA, Tworoger SS, Terry KL, et al. Talc use, variants of the GSTM1, GSTT1, and NAT2 genes, and risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers Prev*. 2008; 17(9):2436-2444

Germani D, Belli S, Bruno C, et al. Cohort mortality study of women compensated for asbestosis in Italy. *Am J Ind Med*. 1999; 36(1):129-134

Gertig DM, Hunter DJ, Cramer DW, et al. Prospective Study of Talc Use and Ovarian Cancer. *J Natl Cancer Inst*. 2000; 92(3): 249-252

Godard B, Foulkes WD, Provencher D, et al. Risk factors for familial and sporadic ovarian cancer among French Canadians: a case-control study. *Am J Obstet Gynecol*. 1998; 179(2):403-410

Gonzalez NL, O'Brien KM, D'Aloisio AA, Sandler DP, Weinberg CR. Douching, Talc Use, and Risk of Ovarian Cancer. *Epidemiology*. 2016; 27(6): 797-802

Gordis L. *Epidemiology*. 5th ed. Philadelphia, PA: 2014

Green A, Purdie D, Bain C, et al. Tubal sterilisation, hysterectomy and decreased risk of ovarian cancer. Survey of Women's Health Study Group. *Int J Cancer*. 1997; 71(6):948-951

Hamilton TC, Fox H, Buckley CH, et al. Effects of talc on the rat ovary. *Br J Exp Pathol*. 1984; 65(1):101-106

Harlow BL, Cramer DW, Bell DA, Welch WR. Perineal exposure to talc and ovarian cancer risk. *Obstet Gynecol*. 1992; 80(1):19-26

Harlow BL, Weiss NS. A case-control study of borderline ovarian tumors: the influence of perineal exposure to talc. *Am J Epidemiol*. 1989; 130(2):390-394

Materials Reviewed and Considered by Dr. Gregory Diette, M.D., M.H.S.

Hartge P, Hoover R, Leshner LP, McGowan L. Talc and Ovarian Cancer. JAMA. 1983; 250(14):1844

Hartge P, Stewart P. Occupation and ovarian cancer: a case-control study in the Washington, DC, metropolitan area, 1978-1981. J Occup Med. 1994; 36(8):924-927

Health Canada, Draft screening assessment talc ($\text{Mg}_3\text{H}_2(\text{SiO}_3)_4$), Chemical Abstracts Service Registry Number 14807-96-6, <https://www.canada.ca/content/dam/eccc/documents/pdf/pded/talc/Draft-screening-assessment-talc.pdf>

Health Canada, Risk management scope for talc ($\text{Mg}_3\text{H}_2(\text{SiO}_3)_4$), Chemical Abstracts Service Registry Number 14807-96-6, 2018.

Heller DS, Gordon RE, Westhoff C, Gerber S. Asbestos exposure and ovarian fiber burden. Am J Ind Med. 1996; 29(5):435-439.

Heller DS, Westhoff C, Gordon RE, Katz N. The Relationship Between Perineal Cosmetic Talc Usage and Ovarian Talc Particle Burden. Am J Obstet Gynecol. 1996; 174(5):1507-1510

Hill AB. The Environment and Disease: Association or Causation? Proc R Soc Med. 1965; 58(5):295-300

Houghton SC, Reeves KW, Hankinson SE, et al. Perineal Powder Use and Risk of Ovarian Cancer. J Natl Cancer Inst. 2014; 106(9): dju208

Huncharek M, Geschwind JF, Kupelnick B. Perineal application of cosmetic talc and risk of invasive epithelial ovarian cancer: a meta-analysis of 11,933 subjects from sixteen observational studies. Anticancer Res. 2003; 23(2C):1955-1960

International Agency for Research on Cancer, Monographs on the Evaluation of Carcinogenic Risks to Humans Vol. 100C: Asbestos (Chrysotile, Amosite, Crocidolite, Tremolite, Actinolite, and Anthophyllite) 253 (2012)

International Agency for Research on Cancer, Monographs on the Evaluation of Carcinogenic Risks to Humans Vol. 93: Carbon Black, Titanium Dioxide, and Talc 18-19 (2010)

Jordan SJ, Green AC, Whiteman DC, Webb PM, Australian Ovarian Cancer Study Group. Risk factors for benign, borderline and invasive mucinous ovarian tumors: epidemiological evidence of a neoplastic continuum? Gynecol Oncol. 2007; 107(2):223-230

Jordan SJ, Green AC, Whiteman DC, Webb PM. Risk factors for benign serous and mucinous epithelial ovarian tumors. Obstet Gynecol. 2007; 109(3):647-654

Kotsopoulos J, Terry KL, Poole EM, et al. Ovarian cancer risk factors by tumor dominance, a surrogate for cell of origin. Int J Cancer. 2013; 133(3):730-739

Materials Reviewed and Considered by Dr. Gregory Diette, M.D., M.H.S.

Kurta ML, Moysich KB, Weissfeld JL, et al. Use of fertility drugs and risk of ovarian cancer: results from a U.S.-based case-control study. *Cancer Epidemiol Biomarkers Prev.* 2012; 21(8):1282-1292

Langseth H, Hankinson SE, Siemiatycki J, Weiderpass E. Perineal Use of Talc and Risk of Ovarian Cancer. *J Epidemiol Community Health.* 2008; 62(4):358-360

Lee P, Sun L, Lim CK, et al. Selective apoptosis of lung cancer cells with talc. *Eur Respir J.* 2010; 35(2):450-452

Letter from Food & Drug Administration, U.S. Department of Health and Human Services, to Samuel S. Epstein, M.D., Cancer Prevention Coalition, University of Illinois (Apr. 1, 2014)

Magnani C, Ferrante D, Barone-Adesi F, et al. Cancer risk after cessation of asbestos exposure: a cohort study of Italian asbestos cement workers. *Occup Environ Med.* 2008; 65(3):164-170

Malmberg K, Klynning C, Flöter-Rådestad A, Carlson JW. Serous tubal intraepithelial carcinoma, chronic fallopian tube injury, and serous carcinoma development. *Virchows Arch.* 2016; 468(6):707-713

Mayo Clinic, Cancer (Dec. 12, 2018), <https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588>

Merritt MA, Green AC, Nagle CM, et al. Talcum powder, chronic pelvic inflammation and NSAIDs in relation to risk of epithelial ovarian cancer. *Int J Cancer.* 2008; 122(1):170-176

Mills PK, Riordan DG, Cress RD, Young HA. Perineal talc exposure and epithelial ovarian cancer risk in the Central Valley of California. *Int J Cancer.* 2004; 112(3):458-464

Moorman PG, Palmieri RT, Akushevich L, et al. Ovarian cancer risk factors in African-American and white women. *Am J Epidemiol.* 2009; 170(5):598-606

Muscat JE, Huncharek MS. Perineal talc use and ovarian cancer: a critical review. *Eur J Cancer Prev.* 2008; 17(2):139-146

Nasreen N, Mohammed KA, Brown S, et al. Talc mediates angiostasis in malignant pleural effusions via endostatin induction. *Eur Respir J.* 2007; 29(4):761-769

National Cancer Institute, NCI Dictionary of Cancer Terms, “hazard ratio,” <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/hazard-ratio>.

National Cancer Institute, Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention (PDQ®)—Health Professional Version, <https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq> (last updated Jan. 4, 2019)

Ness RB, Grisso JA, Cottreau C, et al. Factors related to inflammation of the ovarian epithelium and risk of ovarian cancer. *Epidemiology.* 2000; 11(2):111-117

Materials Reviewed and Considered by Dr. Gregory Diette, M.D., M.H.S.

Ni X, Ma J, Zhao Y, et al. Meta-analysis on the association between non-steroidal anti-inflammatory drug use and ovarian cancer. *Br J Clin Pharmacol*. 2013; 75(1):26-35

Okada, F. Beyond foreign-body-induced carcinogenesis: Impact of reactive oxygen species deived from inflammatory cells in tumorigenic conversation and tumor progression. *Int. J. Cancer*. 2007; 121:2364-2372.

Penninkilampi R, Eslick GD. Perineal Talc Use and Ovarian Cancer: A Systematic Review and Meta-Analysis. *Epidemiology*. 2018; 29(1):41-49

Peres LC, Risch H, Terry KL, et al. Racial/ethnic differences in the epidemiology of ovarian cancer: a pooled analysis of 12 case-control studies. *Int J Epidemiol*. 2018; 47(2):460-472

Purdie DM, Bain CJ, Siskind V, et al. Ovulation and risk of epithelial ovarian cancer. *Int. J. Cancer*. 2003; 104:228-232.

Pira PE, Coggiola M, Ciocan C, et al. Mortality of Talc Miners and Millers from Val Chisone, Northern Italy: An Updated Cohort Study. *J Occup Environ Med*. 2017; 59(7):659-664

Purdie D, Green A, Bain C, et al. Reproductive and other factors and risk of epithelial ovarian cancer: an Australian case-control study. Survey of Women's Health Study Group. *Int J Cancer*. 1995; 62(6):678-684

Reid A, de Klerk N, Musk AW. Does exposure to asbestos cause ovarian cancer? A systematic literature review and meta-analysis. *Cancer Epidemiol Biomarkers Prev*. 2011; 20(7):1287-1295

Reid A, Heyworth J, de Klerk NH, Musk B. Cancer Incidence Among Women and Girls Environmentally and Occupationally Exposed to Blue Asbestos at Wittenoom, Western Australia. *Int J Cancer*. 2008; 122(10):2337-2344

Reid A, Segal A, Heyworth JS, et al. Gynecologic and breast cancers in women after exposure to blue asbestos at Wittenoom. *Cancer Epidemiol Biomarkers Prev*. 2009; 18(1):140-147

Rosenblatt KA, Szklo M, Rosenshein NB. Mineral fiber exposure and the development of ovarian cancer. *Gynecol Oncol*. 1992; 45(1):20-25

Rosenblatt KA, Weiss NS, Cushing-Haugen KL. Genital powder exposure and the risk of epithelial ovarian cancer. *Cancer Causes Control*. 2011; 22(5):737-742

Rothman KJ, Pastides H, Samet J. Interpretation of Epidemiologic Studies on Talc and Ovarian Cancer 4 (Nov. 28, 2000), <https://ntp.niehs.nih.gov/ntp/newhomeroc/roc12/mcewen-07-14-04.pdf>

Schildkraut JM, Abbott SE, Alberg AJ, et al. Association between Body Powder Use and Ovarian Cancer: The African American Cancer Epidemiology Study (AACES). *Cancer Epidemiol Biomarkers Prev*. 2016; 25(10):1411-1417

Materials Reviewed and Considered by Dr. Gregory Diette, M.D., M.H.S.

Seifert, B. Validity criteria for exposure assessment methods. *The Science of the Total Environment*. 1995; 168: 101-107.

Taher MK, Farhat N, Karyakina NA, et al. Systematic Review and Meta-Analysis of the Association Between Perineal Use of Talc and Risk of Ovarian Cancer (2018) (unpublished manuscript)

TalcDataResults-janehall.xlsx

Terry KL, Karageorgi S, Shvetsov YB, et al. Genital Powder Use and Risk of Ovarian Cancer: A Pooled Analysis of 8,525 Cases and 9,859 Controls. *Cancer Prev Res (Phila)*. 2013; 6(8):811-821

Trabert B, Ness RB, Lo-Ciganic WH, et al. Aspirin, nonaspirin nonsteroidal anti-inflammatory drug, and acetaminophen use and risk of invasive epithelial ovarian cancer: a pooled analysis in the Ovarian Cancer Association Consortium. *J Natl Cancer Inst*. 2014; 106(2):djt431

Trabert B, Poole EM, White E, et al. Analgesic Use and Ovarian Cancer Risk: An Analysis in the Ovarian Cancer Cohort Consortium. *J Natl Cancer Inst*. 2019; 111(2):137-145

Tzonou A, Polychronopoulou A, Hsieh CC, et al. Hair dyes, analgesics, tranquilizers and perineal talc application as risk factors for ovarian cancer. *Int J Cancer*. 1993; 55(3):408-410

Wergeland E, Andersen A, Baerheim A. Morbidity and mortality in talc-exposed workers. *Am J Ind Med*. 1990; 17(4):505-513

Whittemore AS, Wu ML, Paffenbarger RS Jr, et al. Personal and environmental characteristics related to epithelial ovarian cancer. II. Exposures to talcum powder, tobacco, alcohol, and coffee. *Am J Epidemiol*. 1988; 128(6):1228-1240

Wignall BK, Fox AJ. Mortality of female gas mask assemblers. *Br J Ind Med*. 1982; 39(1):34-38

Wong C, Hempling RE, Piver MS, et al. Perineal talc exposure and subsequent epithelial ovarian cancer: a case-control study. *Obstet Gynecol*. 1999; 93(3):372-376

Wu AH, Pearce CL, Tseng CC, et al. Markers of inflammation and risk of ovarian cancer in Los Angeles County. *Int J Cancer*. 2009; 124(6):1409-1415

Wu AH, Pearce CL, Tseng CC, Pike MC. African Americans and Hispanics Remain at Lower Risk of Ovarian Cancer Than Non-Hispanic Whites after Considering Nongenetic Risk Factors and Oophorectomy Rates. *Cancer Epidemiol Biomarkers Prev*. 2015; 24(7):1094-100

Yaker A, Benirschke K. A ten year study of ovarian tumors. *Virchows Arch A Pathol Anat Histol*. 1975; 366(4):275-86

APPENDIX C

CURRICULUM VITAE
The Johns Hopkins University School of Medicine

June 2017

GREGORY B. DIETTE, MD, MHS

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointment:

University: Professor of Medicine
Division of Pulmonary and Critical Care Medicine
The Johns Hopkins University School of Medicine
Baltimore, MD

Division of General Internal Medicine
The Johns Hopkins University School of Medicine
Baltimore, MD

Department of Epidemiology
The Johns Hopkins University Bloomberg School of Public Health
Baltimore, MD

Department of Environmental Health Sciences
Johns Hopkins University Bloomberg School of Public Health
Baltimore, MD

Personal Data:

Business Address:

Division of Pulmonary and Critical Care Medicine
The Johns Hopkins University School of Medicine
1830 East Monument Street, 5th Floor
Baltimore, MD 21205
Telephone (410) 955-3467/3468
FAX (410) 367-2014
E-mail: gdiette@jhmi.edu

Education and Training

1981-1986	B.S.	The University of Pennsylvania Wharton School, Philadelphia, PA. BS degree in economics. Concentration: Management of Entrepreneurship
1981-1986	B.A.	The University of Pennsylvania School of Arts and Sciences Philadelphia, PA. English; Minor in Chemistry
1986-1990	M.D.	Temple University School of Medicine, Philadelphia, PA
1995-1997	M.H.S.	Johns Hopkins University, School of Hygiene and Public Health Epidemiology; Clinical Epidemiology

Post-Doctoral Training

1990-1993	Intern-Resident, Department of Internal Medicine, Hospital of the University of Pennsylvania, Philadelphia, PA
1994-1995	Clinical Fellow, Division of Pulmonary and Critical Care, Johns Hopkins University School of Medicine, Baltimore, MD
1995-1998	Research Fellow, Division of Pulmonary and Critical Care, Johns Hopkins University School of Medicine, Baltimore, MD

Professional Experience:

1991-1993	Assistant Clinical Instructor, University of Pennsylvania School of Medicine, Philadelphia, PA
1993-1994	Clinical Instructor, University of Pennsylvania School of Medicine, Philadelphia, PA
1993-1994	Attending Physician, Full-time, Department of Emergency Medicine, Hospital of the University of Pennsylvania, Philadelphia, PA
1996-1999	Senior Physician Scientist, Quality Assessment and Improvement Systems Division, Covance Health Economics and Outcomes Services. Washington, D.C.
1998-2000	Instructor, Departments of Medicine and Epidemiology, Johns Hopkins University, Baltimore, MD
1998-present	Attending Physician, Department of Medicine, Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center, Baltimore, MD Duties include outpatient practice devoted to adult asthma and general pulmonary medicine; inpatient care in acute care hospital and intensive care units.
1998-2005	Core Faculty, Program for Medical Practice and Technology Assessment, Johns Hopkins University, Baltimore, MD

- 2000-2005 Assistant Professor of Medicine, Departments of Medicine and Epidemiology, Johns Hopkins University, Baltimore, MD
- 2005-2011 Associate Professor of Medicine, Departments of Medicine and Epidemiology, Johns Hopkins University, Baltimore, MD
- 2001-2015 Director of Clinical Research, Division of Pulmonary and Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD.
- 2011-Present Professor of Medicine, Schools of Medicine and Public Health, Johns Hopkins University, Baltimore, MD
- 2011-Present Director, Obstructive Lung Disease Program, Division of Pulmonary and Critical Care Medicine, Johns Hopkins University, Baltimore, MD

RESEARCH ACTIVITIES

Original Research

1. Grasso M, Weller WE, Shaffer TJ, **Diette GB**, Anderson GF. Capitation, Managed Care, and Chronic Obstructive Pulmonary Disease. *American Journal of Respiratory and Critical Care Medicine* 1998;158:133-138.
2. **Diette GB**, White P, Terry P, Jenckes M, Wise RA, Rubin H. Quality Assessment through Patient Self-Report of Symptoms Pre- and Post- Fiberoptic Bronchoscopy. *Chest* 1998;114:1446-1453.
3. **Diette GB**, Wiener CM, White P. The Higher Risk of Bleeding in Lung Transplant Recipients from Bronchoscopy is Independent of Traditional Bleeding Risks: Results of a Prospective Cohort Study. *Chest* 1999;115:397-402.
4. **Diette GB**, Wu AW, Skinner EA, Clark R, Markson L, McDonald R, Huber M, Markson L, Steinwachs D. Treatment Patterns Among Adult Asthmatics: Factors Associated with Overuse of Inhaled β -Agonists and Underuse of Inhaled Corticosteroids. *Archives of Internal Medicine* 1999;159: 2697-2704.
5. Barr LF, Campbell SE, **Diette GB**, Gabrielson EW, Kim S, Shim H, Dang CV. C-Myc Suppresses the Tumorigenicity of Lung Cancer Cells and Down-regulates Vascular Endothelial Growth Factor Expression. *Cancer Research* 2000; 60:143-9.
6. **Diette GB**, White P, Terry P, Jenckes M, Rosenthal D, Rubin HR. Utility of On-site Cytopathology Assessment for Bronchoscopic Evaluation of Lung Masses and Adenopathy. *Chest* 2000; 117:1186-1190.
7. Lechtzin N, Rubin HR, Jenckes M, White P, Zhou L, Thompson DA, **Diette GB**. Predictors of Pain Control in Patients Undergoing Flexible Bronchoscopy. *American Journal of Respiratory and Critical Care Medicine* 2000; 162:440-445.
8. **Diette GB**, Markson L, Skinner EA, Nguyen TTH, Algatt-Bergstrom P, Clark R, Wu AW. Nocturnal Asthma in Children Affects School Attendance, School Performance and Parents' Work Attendance. *Archives of Pediatric and Adolescent Medicine* 2000;154:923-928.

9. **Diette GB**, Skinner EA, Markson L, Algatt-Bergstrom P, Nguyen TTH, Clark RD, Wu AW. Consistency of Care with National Guidelines for Children with Asthma in Managed Care. *Journal of Pediatrics* 2001;138:59-64.
10. Lechtzin N, Wiener CM, Clawson L, Chaudhry V, **Diette GB**. Hospitalization in amyotrophic lateral sclerosis: Causes, Costs and Outcomes. *Neurology* 2001;56:753-757.
11. Krishnan JA, **Diette GB**, Skinner EA, Clark BD, Steinwachs D, Wu AW. Race and Sex Differences in Consistency of Care with National Asthma Guidelines in Managed Care Organizations. *Archives of Internal Medicine* 2001;161:1660-1668.
12. **Diette GB**, Skinner EA, Nguyen TTH, Markson L, Clark BD, Wu AW. Comparison of Quality of Care of Specialist and Generalist Physicians as Usual Source of Asthma Care for Children. *Pediatrics* 2001;108: 432-437.
13. Wu AW, Young Y, Skinner EA, **Diette GB**, Vogeli C, Huber M, Peres A, Steinwachs D. Quality of Care and Outcomes of Adult Asthmatics Treated by Specialists and Generalists in Managed Care. *Archives of Internal Medicine* 2001;161:2554-2560.
14. Rubin HR, Pronovost P, **Diette GB**. From a Process of Care to a Measure: The Development and Testing of a Quality Indicator. *International Journal for Quality in Health Care* 2001; 13: 489-496.
15. Rubin HR, Pronovost P, **Diette GB**. The advantages and disadvantages of process-based measures of health care quality. *International Journal for Quality in Health Care* 2001; 13: 469-474.
16. Lechtzin N, Wiener CM, Shade DM, Clawson L, **Diette GB**. Spirometry in the supine position improves the detection of diaphragmatic weakness in ALS. *Chest* 2002; 121: 436-442.
17. Wolfenden LL, **Diette GB**, Skinner EA, Steinwachs DM, Wu AW. Gaps in Asthma Care of the Oldest Adults. *Journal of the American Geriatrics Society* 2002; 50: 877-883.
18. **Diette GB**, Krishnan J, Dominici F, Haponik E, Skinner EA, Steinwachs D, Wu AW. Asthma in older patients: Factors associated with hospitalization. *Archives of Internal Medicine* 2002;162:1123-1132.
19. Lechtzin N, Rothstein J, **Diette GB**, Wiener CM. Amyotrophic Lateral Sclerosis: Evaluation and Treatment of Respiratory Impairment. *Amyotrophic Lateral Sclerosis and Other Motor Neuron Diseases* 2002;3:5-13.
20. Allen-Ramey FC, Clawson L, **Diette GB**, McDonald RC, Skinner EA, Steinwachs DM, Wu AW. Methods Aimed at Improving Asthma Care and Outcomes Management. *Disease Management & Health Outcomes* 2002;10(8):495-503.
21. Lechtzin N, Rubin HR, Jenckes M, White P, **Diette GB**. Patient satisfaction with bronchoscopy. *American Journal of Respiratory and Critical Care Medicine* 2002;166: 1326-1331.
22. Scatarige JD, **Diette GB**, Merriman B, Haponik EF, Fishman EK. Availability, Requesting Practices, and Barriers to Referral for High-Resolution Computed Tomography of the Lungs: Results of a Survey of U.S. Pulmonologists. *Academic Radiology* 2002;9:1370-1377.

23. Srinivasan A, Wolfenden LL, Song X, Hartsell T, Jones HD, **Diette GB**, Orens JB, Yung RC, Ross TL, Mackie K, Merz W, Scheel PJ, Haponik EF, Perl TM. An outbreak of *Pseudomonas aeruginosa* associated with flexible bronchoscopes. *New England Journal of Medicine* 2003 Jan 16;348: 221-7.
24. Wolfenden LL, **Diette GB**, Krishnan JA, Skinner EA, Steinwachs DM, Wu AW. Lower physician estimate of underlying asthma severity leads to under-treatment. *Archives of Internal Medicine* 2003; 163:231-6.
25. Scatarige JD, **Diette GB**, Merriman B, Haponik EF, Fishman EK. Utility of High-resolution CT for Management of Patients with Diffuse Lung Disease: Results of a Survey of U.S. Pulmonary Physicians. *Academic Radiology* 2003; 10:167-175.
26. Scatarige JD, **Diette GB**, Merriman B, Fishman EK. Physician Satisfaction with HRCT Services Provided by Radiologists: Results of a Nationwide Survey of American Pulmonary Sub-specialists. *American Journal of Roentgenology* 2003; 180:585-589.
27. **Diette GB**, Lechtzin N, Haponik E, Devrotes A, Rubin HR. Distraction Therapy with Nature Sights and Sounds Reduces Pain During Flexible Bronchoscopy: A Complementary Approach to Routine Analgesia. *Chest* 2003; 123(3):941-948.
28. Patil S, Krishnan JA, Lechtzin N, **Diette GB**. In-Hospital Mortality Following Acute Exacerbation of Chronic Obstructive Pulmonary Disease. *Archives of Internal Medicine* 2003 May 26;163(10): 1180-6.
29. Hehn BT, Haponik E, Rubin HR, Lechtzin N, **Diette GB**. The Relationship of Age to Process of Care and Patient Tolerance of Bronchoscopy. *Journal of the American Geriatrics Society* 2003 51:917-922.
30. Krishnan JA, Parce PB, Martinez T, **Diette GB**, Brower RG. Caloric Intake in Medical Intensive Care Unit Patients: Consistency of Care with Guidelines and Relationship to Clinical Outcomes. *Chest* 2003; 124:297-305.
31. Robinson L, Wu AW, Haponik EF, **Diette GB**. Internists' Adherence to Guidelines for Prevention of Intravascular Catheter Infections. *JAMA* 2003;290(21):2802.
32. Alberg AJ, **Diette GB**, Ford JG. Invited Commentary: Attendance and Absence as Markers of Health Status – The Example of Active and Passive Cigarette Smoking. *Am J Epidemiol* 2003; 157:870-873.
33. Lechtzin N, Wiener CM, Clawson L, Davidson MC, Anderson F, Gowda N, **Diette GB** and the ALS CARE Study Group. Use of noninvasive ventilation in patients with amyotrophic lateral sclerosis. *ALS and Other Motor Neuron Disorders* 2004;5(1):9-15.
34. Robinson L, **Diette GB**, Song X, Brower RG, Krishnan JA. Low Caloric Intake is Associated with Nosocomial Blood Stream Infections in Patients in the Medical Intensive Care Unit. *Critical Care Medicine* 2004;32(2)350-357.
35. Hansel NN, Wu AW, Chang B, **Diette GB**. Quality of Life in Tuberculosis: Patient and Provider Perspectives. *Quality of Life Research* 2004;13:639-652.

36. Yurk R, **Diette GB**, Skinner EA, Steinwachs DM, Wu AW. Predicting Patient Reported Asthma Outcomes for Adults in Managed Care. *American Journal of Managed Care* 2004;10:321-328.
37. Swartz LJ, Callahan KA, Butz AM, Rand CA, Kanchanaraksa S, **Diette GB**, Krishnan JA, Breyse PN, Buckley TJ, Mosley AM, Eggleston PA. Methods and Issues in Conducting a Community-Based Environmental Randomized Trial. *Environmental Research* 2004 June;95(2):156-65.
38. Matsui EC, Krop EJM, **Diette GB**, Aalberse RC, Smith AL, Eggleston PA. Mouse Allergen Exposure and Immunologic Responses: IgE-Mediated Mouse Sensitization, Mouse-Specific IgG and IgG4. *Annals of Allergy, Asthma and Immunology* 2004; 93(2):171-8.
39. Hansel NN, Merriman B, Haponik EF, **Diette GB**. Hospitalizations for Tuberculosis in the United States in 2000: Predictors of In-hospital Mortality. *Chest* 2004; 126(4):1079-86.
40. Okelo S, Wu AW, Krishnan J, Rand CS, Skinner EA, **Diette GB**. Emotional Quality of Life and Outcomes in Adolescents with Asthma. *Journal of Pediatrics* 2004; 145(4):523-9.
41. Chang B, Wu AW, Hansel NN, **Diette GB**. Quality of life in tuberculosis: A review of the English language literature. *Quality of Life Research* 2004; 13:1633-1642.
42. **Diette GB**, Krishnan JA, Wolfenden LL, Skinner EA, Steinwachs DM, Wu AW. Relationship of Physician Estimate of Underlying Asthma Severity to Asthma Outcomes. *Annals of Allergy, Asthma and Immunology* 2004; 93(6):546-52.
43. Huang I, **Diette GB**, Dominici F, Frangakis C, Wu AW. Variations of Physician Group Profiling Indicators for Asthma Care. *Am J Managed Care*. 2004;10:38-44.
44. Skinner EA, **Diette GB**, Algatt-Bergstrom P, Nguyen TTH, Clark B, Markson LE, Wu AW. The Asthma Therapy Assessment Questionnaire (ATAQ) for Children and Adolescents. *Disease Management*. 2004;7:305-313.
45. Huang I, Dominici F, Frangakis C, **Diette GB**, Damberg CL, Wu AW. Is risk-adjustor selection more important than statistical approach for provider profiling? Asthma as an example. *Medical Decision Making*. 2005 Jan-Feb 25(1):20-34.
46. Sapkota A, Symons JM, Kleissl J, Wang L, Parlange MB, Ondov J, Breyse PN, **Diette GB**, Eggleston PA, and Buckley TJ. Impact of the 2002 Canadian forest fires on particulate matter air quality in Baltimore city. *Environmental Science Technology* 2005 Jan 1;39(1):24-32.
47. Huang I, Frangakis C, Dominici F, **Diette GB**, Wu, AW. Application of a propensity score approach for risk adjustment in profiling multiple physician groups on asthma care. *Health Services Research*. 2005;40(1):253-278.
48. **Diette GB**, Scatarige JC, Haponik EF, Merriman B, Fishman EK. Do High-Resolution CT Findings of Usual Interstitial Pneumonitis Obviate Lung Biopsy? *Respiration*. 2005;72:134-141.
49. Breyse PN, Buckley TJ, Williams D, Beck CM, Kanchanaraksa S, Swartz LJ, Callahan KA, Butz AM, Rand CS, **Diette GB**, Krishnan JA, Moseley AM, Curtin-Brosnan J, Durkin NB, Eggleston PA.

Indoor Exposures to Air Pollutants and Allergens in the Homes of Asthmatic Children in Inner-City Baltimore. *Environmental Research*. 2005;98:167-176.

50. Hansel NN, Hilmer SC, Georas SN, Cope LM, Guo J, Irizarry RA, **Diette GB**. Oligonucleotide Microarray Analysis of Peripheral Blood Lymphocytes in Severe Asthma. *Journal of Laboratory and Clinical Medicine* 2005 May;145(5):263-274.
51. Girgis RE, Champion HC, **Diette GB**, Johns RA, Permutt S, Sylvester JT. Decreased Exhaled Nitric Oxide in Pulmonary Arterial Hypertension: Response to Bosentan Therapy. *American Journal of Respiratory and Critical Care Medicine* 2005;172(3):352-7.
52. Robinson L, Wu AW, Haponik EF, **Diette GB**. Why is it that internists do not follow guidelines for preventing intravascular catheter infections? *Infection Control Hospital Epidemiology* 2005;26(6):525-533.
53. Wanner TJ, Gerhardt SG, **Diette GB**, Orens JB. The Utility of Cytopathology Testing in Lung Transplant Recipients. *J Heart and Lung Transplant*. 2005;24(7):870-874.
54. Matsui EC, **Diette GB**, Krop EJM, Aalberse RC, Smith AL, Curtin-Brosnan J, Eggleston PA. Mouse allergen-specific immunoglobulin G and immunoglobulin G4 and allergic symptoms in immunoglobulin E-sensitized laboratory animal workers. *Clin Exp Allergy*. 2005;35:1347-1353.
55. Eggleston PA, **Diette GB**, Lipsett M, Lewis T, Tager I, McConnell R, Chrischilles R, Lanphear B, Miller R, Krishnan J. Lessons Learned for the Study of Childhood Asthma from the Centers for Children's Environmental Health and Disease Prevention Research. *Environ Health Perspect*. 2005;113(10):1430-1436.
56. Eggleston PA, Butz A, Rand C, Curtin-Brosnan J, Kanchanaraks S, Swartz L, Breyse P, Buckley T, **Diette GB**, Merriman B, Krishnan J. Home environmental intervention in inner-city asthma: a randomized controlled clinical trial. *Ann Allergy Asthma and Immunology*. 2005;95(6):496-497.
57. Weiss CR, Scatarige JC, **Diette GB**, Haponik EF, Merriman B, Fishman, EK. CT Pulmonary Angiography is the First-Line Imaging Test for Acute Pulmonary Embolism: A Survey of US Clinicians. *Academic Radiology*. 2006 Apr; 13(4):434-46.
58. Colom AJ, Teper AM, Vollmer WM, **Diette GB**. Risk Factors for the Development of Bronchiolitis Obliterans in Children with Bronchiolitis. *Thorax*. 2006 Jun; 61(6):462-3.
59. Scatarige JC, Weiss CR, **Diette GB**, Haponik EF, Merriman B, Fishman EK. Scanning Systems and Protocols used during imaging for Acute Pulmonary Embolism: How Much do our Clinical Colleagues Know? *Academic Radiology*. 2006; 13:678-685.
60. Matsui EC, **Diette GB**, Krop EJM, Aalberse RC, Smith AL, Eggleston PA. Mouse Allergen-specific Immunoglobulin G4 and risk of mouse skin test sensitivity. *Clin Exper Allergy*. 2006;36(8): 1097-103.
61. Krishnan V, **Diette GB**, Rand CS, Bilderback AL, Merriman BJ, Hansel NN, Krishnan JA. Mortality in patients hospitalized for asthma exacerbations in the United States. *Am J Resp Crit Care Med*. 2006 Jun 15;174(6):633-8.

62. Lechtzin N, John M, Irizarry R, Merlo C, **Diette GB**, Boyle MP. Outcomes of Adults with Cystic Fibrosis Infected with Antibiotic Resistant *Pseudomonas aeruginosa*. *Respiration*. 2006;73(1):27-33.
63. Hansel NN, Eggleston PA, Krishnan JA, Curtin-Brosnan J, Rand CS, Patino CM, **Diette GB**. Asthma-Related Health Status Determinants of Environmental Control Practices for Inner-City Pre-School Children. *Annals of Allergy, Asthma & Immunology*. 2006 Sep; 97(3):409-17.
64. Matsui EC, Eggleston PA, Buckley TJ, Krishnan JA, Breyse P, Rand C, **Diette GB**. Household Mouse Allergen Exposure and Asthma Morbidity in Inner-City Pre-School Children. *Annals of Allergy, Asthma & Immunology*. 2006; 97(4): 514-20.
65. Hansel NN, Rand CS, Krishnan JA, Okelo S, Breyse PN, Eggleston PA, Matsui E, Curtin-Brosnan J, **Diette GB**. Influence of Caregiver's Health Beliefs and Experiences on their Use of Environmental Control Practices in Homes of Pre-School Children with Asthma. *Pediatric Asthma, Allergy & Immunology*. 2006;19(4):231-242.
66. Matsui EC, Eggleston PA, Breyse PN, Rand CS, **Diette GB**. Mouse allergen-specific antibody responses in inner-city children with asthma. *Journal of Allergy and Clinical Immunology* 2007;119(4):910-5.
67. Schmier JK, Manjunath R, Halpern MT, Jones ML, Thompson K, **Diette GB**. The impact of inadequately controlled asthma in urban children on quality of life and productivity. *Annals of Allergy Asthma Immunology* 2007;98(3):245-251.
68. Okelo SO, Wu AW, Merriman B, Krishnan JA, **Diette GB**. Are Physician Estimates of Asthma Severity Less Accurate in Black than in White Patients? *Journal of General Internal Medicine* 2007;22(7):976-81.
69. Han MK, Kim MG, Mardon R, Renner P, Sullivan S, **Diette GB**, Martinez FJ. Spirometry utilization for COPD? How do we measure up? *Chest*. 2007;132(2):403-9.
70. **Diette GB**, Patino CM, Merriman B, Paulin L, Okelo S, Thompson K, Krishnan JA, Quartey R, Perez-Williams D, Rand C. Patient Factors that Physicians Use to Assign Asthma Treatment. *Archives of Internal Medicine*. 2007;167(13):1360-6.
71. Sharma HP, Matsui EC, Eggleston PA, Hansel NN, Curtin-Brosnan J, **Diette GB**. Does current asthma control predict future health care use among black preschool-aged inner-city children? *Pediatrics*. 2007 Nov;120(5):e1174-81.
72. **Diette GB**, Hansel NN, Buckley TJ, Curtin-Brosnan J, Eggleston PA, Matsui EC, McCormack MC, Williams DL, Breyse PN. Home indoor pollutant exposures among inner-city children with and without asthma. *Environmental Health Perspectives*. 2007 Nov;115(11):1665-9.
73. Weiss CR, **Diette GB**, Haponik EF, Merriman B, Scatarige JC, Fishman EK. Pretest risk assessment in suspected acute pulmonary embolism. *Academic Radiology*. 2008 Jan;15(1):3-14.
74. Hansel NN, Cheadle C, **Diette GB**, Wright J, Thompson KM, Barnes KC, Georas SN. Analysis of CD4+T cell gene expression in allergic subjects using two different microarray platforms. *Allergy*. 2008;63:366-369.

75. Okelo SO, Patino CM, Hansel NN, Eggleston PA, Krishnan JA, Rand CS, **Diette GB**. Use of Asthma Specialist Care in High-Risk Inner-City Black Children. *Pediatric Asthma Allergy & Immunology*. 2007;20(4):255-262.
76. Okelo SO, Patino CM, Riekert K, Merriman B, Bilderback BS, Hansel NN, Thompson K, Thompson J, Quartey R, Rand CS, **Diette GB**. Patient Factors that Pediatricians Use to Assign Asthma Treatment. *Pediatrics*, 2008;122(1):e195-201.
77. Tonorezos ES, Breyse PN, Matsui EC, McCormack MC, Curtin-Brosnan J, Williams D'Ann, Hansel NN, Eggleston PA, **Diette GB**. Does neighborhood violence lead to depression among caregivers of children with asthma? *Social Science Medicine*. 2008;67(10):31-7.
78. Hansel NN, Breyse PN, McCormack MC, Matsui EC, Curtin-Brosnan J, Williams DL, Moore JL, Cuhnan JL, **Diette GB**. A longitudinal study of indoor nitrogen dioxide levels and respiratory symptoms in inner-city children with asthma. *Environmental Health Perspectives* 2008;116(10):1428-32.
79. Kim S, Aung T, Berkeley E, **Diette GB**, Breyse P. Measurement of Nicotine in Household Dust. *Environmental Research*. 2008;108(3):289-93.
80. Curtin-Brosnan J, Matsui EC, Breyse PN, McCormack MC, Hansel NN, Tonorezos ES, Eggleston PA, Williams D'Ann, **Diette GB**. Parent Report of Pests and Pets and Indoor Allergen Levels in Inner City Homes. *Annals of Allergy, Asthma and Immunology*. 2008;101(5):517-23.
81. Patino, CM, Okelo SO, Rand CS, Riekert KA, Krishnan JA, Thompson K, Quartey RI, Perez-Williams D, Bilderback A, Merriman B, Paulin L, Hansel N, **Diette GB**. The Asthma Control and Communication Instrument: a clinical tool developed for ethnically diverse populations. *Journal of Allergy and Clinical Immunology*. 2008;122(5):936-943.e6.
82. McCormack MC, Breyse PN, Hansel NN, Matsui EC, Tonorezos E, Curtin-Brosnan J, Eggleston PA, **Diette GB**. Common Household Activities are Associated with Elevated Particulate Matter Concentrations in Bedrooms of Inner-City Baltimore Preschool Children. *Environmental Research*, 2008;106(2):148-55.
83. McCormack MC, Breyse PN, Matsui EC, Hansel NN, Williams D, Curtin-Brosnan J, Eggleston P, **Diette GB**. In-home particle concentrations and childhood asthma morbidity. *Environ Health Perspect*. 2009;117(1):294-8.
84. O'Brien Jr JM, Aberegg SK, Ali NA, **Diette GB**, Lemeshow S. Results from the National Sepsis Practice Survey: predictions about mortality and morbidity and recommendations for limitation of care orders. *Crit Care*, 2009;13(3):R96.
85. Clerisme-Beaty E, Karam S, Rand C, Patino CM, Bilderback A, Riekert KA, Okelo SO, **Diette GB**. Does higher body mass index contribute to worse asthma control in an urban population? *J Allergy Clin Immunol*, 2009;124(2):207-12.
86. Mathias RA, Grant AV, Rafaels N, Hand T, Gao L, Vergara C, Tsai YJ, Yang M, Campbell M, Foster C, Gao P, Togias A, Hansel NN, **Diette G**, Adkinson NF, Liu MC, Faruque M, Dunston GM, Watson HR, Bracken MB, Hoh J, Maul P, Maul T, Jedlicka AE, Murray T, Hetmanski JB, Ashworth R, Ongaco CM, Hetrick KN, Doheny KF, Pugh EW, Rotimi CN, Ford J, Eng C,

Burchard EG, Sleiman PM, Hakonarson H, Forno E, Raby BA, Weiss ST, Scott AF, Kabesch M, Liang L, Abecasis G, Moffatt MF, Cookson WO, Ruczinski I, Beaty TH, Barnes KC. A genome-wide association study on African-ancestry populations for asthma. *J Allergy Clin Immunol*. 2010 Feb;125(2):336-346.e4.

87. Castro M, Rubin AS, Laviolette M, Fiterman J, De Andrade Lima M, Shah PL, Fiss E, Olivenstein R, Thomson NC, Niven RM, Pavord ID, Simoff M, Duhamel DR, McEvoy C, Barbers R, Ten Hacken NH, Wechsler ME, Holmes M, Phillips MJ, Erzurum S, Lunn W, Israel E, Jarjour N, Kraft M, Shargill NS, Quiring J, Berry SM, Cox G, and **AIR2 Trial Study Group**. Effectiveness and safety of bronchial thermoplasty in the treatment of severe asthma: a multicenter, randomized, double-blind, sham-controlled clinical trial. *Am J Respir Crit Care Med*. 2010;181(2):116-24.
88. **Diette GB**, Sajjan SG, Skinner EA, Weiss TW, Wu A, Markson LE. Using the pediatric Asthma Therapy Assessment Questionnaire to measure asthma control and health care utilization in children. *The Patient: Patient-Centered Outcomes Research*. 2009; 2 (4), 233-241
89. **Diette GB**, Orr P, McCormack MC, Gandy W, Hamar N. Is Pharmacologic Care of COPD Consistent with Guidelines? *Population Health Manage*. 2010 Feb;13(1):21-6.
90. Breyse PN, **Diette GB**, Matsui EC, Butz AM, Hansel NH, and McCormack MC. Indoor Air Pollution and Asthma in Children. *Proceedings of the American Thoracic Society*. 2010 May (2):102-106.
91. Lechtzin N, Busse AM, Smith MT, Grossman S, Nesbitt S, **Diette GD**. A randomized trial of nature scenery and sounds vs. urban scenery and sounds to reduce pain in adults undergoing bone marrow aspirate and biopsy. *Journal Altern Complement Med* 2010 Sep (9):965-972. PMID:PMC3110836
92. O'Brien JM Jr, Abercgg SK, Ali NA, **Diette GD**, Lemeshow S. Results from the National Sepsis Practice Survey: Use of drotrecogin alfa (activated) and other therapeutic decisions. *Journal of Critical Care* 2010 25(4):658.e7-658.e15. PMID: PMC2978258
93. Murphy A, Chu JH, Xu M, Carey VJ, Lazarus R, Liu A, Szeffler SJ, Strunk R, Demuth K, Castro M, Hansel NN, **Diette GB**, Vonakis BM, Adkinson Jr, FN, Klanderman BJ, Senter-Sylvia J, Ziniti J, Lange C, Pastinen T, Raby BA. Mapping of numerous disease associated expression polymorphisms in primary peripheral blood CD4⁺ lymphocytes. *Hum Mol Genet* 2010;19(23):4745-57. PMID: PMC2972694
94. Bollinger ME, **Diette GB**, Chang C-L, Stephenson JJ, Sajjan S, Fan T, Allen-Ramey FC. Patient characteristics and prescription fill patterns for allergic rhinitis medications, with a focus on montelukast, in a commercially-insured population. *Clinical Therapeutics* 2010 32(6):1093-1102.
95. Butz AM, Breyse P, Rand C, Curtin-Brosnan J, Eggleston P, **Diette GB**, Williams D, Bernert JT, Matsui EC. Household smoking behavior: Effects of indoor air quality and health in urban children with asthma. *Matern Child Health J* 15:460-468, 2011. PMID: PMC3113654
96. McCormack MC, Breyse PN, Matsui EC, Hansel NN, Peng RD, Curtin-Brosnan J, Williams DL, Wills-Karp M, **Diette GD**. Indoor Particulate Matter Increases Asthma Morbidity in Children with Non-Atopic and Atopic Asthma. *Ann of Allergy Asthma Immunol* 106(4):308-315, 2011. PMID: PMC3118306

97. Sharma S, Murphy A, Howrylak J, Himes B, Cho M, Chu JH, Hunninghake G, Fuhlbrigge A, Klandermann B, Ziniti J, Senter-Sylvia J, Liu A, Szeffler SJ, Strunk R, Castro M, Hansel NN, **Diette GB**, Vonakis BM, Adkinson Jr, NF, Carey VJ, Raby BA. The impact of race in epidemiologic studies of gene expression. *Genetic Epidemiology*, 2011;35(2):93-101.
98. **Diette GB**, Fuhlbrigge A, Allen-Ramey F, Hopper A, Sajjan S, Markson LE. Asthma severity in patients initiating controller monotherapy versus combination therapy. *J Asthma* 2011;48(3): 304-310.
99. Torgerson DG, Ampleford EJ, Chiu GY, Gauderman WJ, Gignoux CR, Graves PE, Himes BE, Levin AM, Mathias RA, Hancock DB, Baurley JW, Eng C, Stern DA, Celedón JC, Rafaels N, Capurso D, Conti DV, Roth LA, Soto-Quiros M, Togias A, Li X, Myers RA, Romieu I, Berg DJ, Hu D, Hansel NN, Hernandez RD, Israel E, Salam MT, Galanter J, Avila PC, Avila L, Rodriguez-Santana JR, Chapela R, Rodriguez-Cintrón W, **Diette GB**, Adkinson NF, Abel RA, Ross KD, Shi M, Faruque MU, Dunston GM, Watson HR, Mantese VJ, Ezurum SC, Liang L, Ruczinski I, Ford JG, Huntsman S, Chung KF, Vora H, Li X, Calhoun WJ, Castro M, Sienra-Monge JJ, Del Rio-Navarro B, Deichmann KA, Heinzmann A, Wenzel SE, Busse WW, Gern JE, Lemanske RF Jr, Beaty TH, Bleecker ER, Raby BA, Meyers DA, London SJ; Children's Health Study (CHS) and HARBORS study, Gilliland FD; Genetics of Asthma in Latino Americans (GALA) Study, the Study of Genes-Environment and Admixture in Latino Americans (GALA2) and the Study of African Americans, Asthma, Genes & Environments (SAGE), Burchard EG; Childhood Asthma Research and Education (CARE) Network, Martinez FD; Childhood Asthma Management Program (CAMP), Weiss ST; Study of Asthma Phenotypes and Pharmacogenomic Interactions by Race-Ethnicity (SAPPHIRE), Williams LK; Genetic Research on Asthma in the African Diaspora (GRAAD) Study, Barnes KC, Ober C, Nicolae DL. Meta-analysis of genome-wide association studies of asthma in ethnically diverse North American populations. *Nat Genet.* 2011 Jul 31;43(9):887-92. PMCID: PMC3445408
100. Mahajan AK, **Diette GB**, Hatipoglu U, Bilderback A, Ridge A, Walker Harris V, Dalapathi V, Badlani S, Lewis S, Charbeneau JT, Naureckas ET, Krishnan JA. High frequency chest wall oscillation for asthma and chronic obstructive pulmonary disease exacerbations: A randomized sham-controlled clinical trial. *Respir Res*, 2011; 12(1): 120
101. Maziqie D, **Diette GB**, Breyse PN, Matsui EC, McCormack MC, Curtin-Brosnan J, Williams D, Peng RD, Hansel NN. Predictors of airborne endotoxin concentrations in inner city homes. *Environ Res* 111(4):614-617, 2011. PMCID: PMC3085396
102. Williams DL, Breyse PN, McCormack MC, **Diette GB**, McKenzie S, Geyh AS. Airborne cow allergen, ammonia and particulate matter at homes vary with distance to industrial scale dairy operations: An exposure assessment. *Environ Health* 2011;10(1): 72. PMCID:PMC3184623.
103. Hansel NN, Matsui EC, Rusher R, McCormack MC, Curtin-Brosnan J, Peng RG, Maziqie D, Breyse PN, **Diette GB**. Predicting future asthma morbidity in preschool inner city children. *J of Asthma* 2011, 48(8):797-803. PMID: 21861602.
104. Sharma S, Murphy A, Howrylak J, Himes B, Cho MH, Chu JH, Hunninghake GM, Fuhlbrigge A, Klanderman B, Ziniti J, Senter-Sylvia J, Liu A, Szeffler SJ, Strunk R, Castro M, Hansel NN, **Diette GB**, Vonakis BM, Adkinson NF Jr, Carey VJ, Raby PA. The impact of self-identified race on epidemiologic studies of gene expression. *Genet Epidemiol* 2011;35(2)93-101.

105. Torgerson DG, Ampleford EJ, Chiu GY, Gauderman WJ, Gignoux CR, Graves PE, Himes BE, Levin AM, Mathias RA, Hancock DB, Baurley J, Eng C, Stern DA, Celedón JC, Rafaels N, Capurso D, Conti DV, Roth LA, Soto-Quiros M, Togias A, Li X, Myers RA, Romieu I, Van den Berg DJ, Hu D, Hansel NN, Hernandez RD, Israel E, Salam MT, Galanter J, Avila PC, Avila L, Rodriguez-Santana JR, Rocio Chapela V R, Rodriguez-Cintron W, **Diette GB**, Adkinson NF, Abel RA, Ross KD, Shi M, Faruque WMU, Dunston GM, Watson HR, Mantese VJ, Ezurum SC, Liang L, Ruczinski I, Ford JG, Huntsman S, Chung KF, Vora H, Li X, Calhoun WJ, Castro M, Sierra-Monge JJ, del Rio-Navarro B, Deichmann KA, Heinzmann A, Wenzel SE *et al.* Meta-analysis of genomewide association studies of asthma in ethnically diverse North American populations. *Nat Genet.* 2011 Jul 31;43(9):887-92.
106. Butz AM, Matsui EC, Breyse P, Curtin-Brosnan J, Eggleston P, **Diette G**, Williams D, Yuan J, Bernert JT, Rand C. A randomized trial of air cleaners and a health coach to improve indoor air quality for inner-city children with asthma and secondhand smoke exposure. *Arch Pediatr Adolesc Med.* 2011 Aug;165(8):741-8.
107. Davis MF, Baron P, Price LB, Williams D, Jeyaseelan S, Hambleton I, **Diette GB**, Breyse PN, McCormack MC. Dry collection and culture methods for recovery of methicillin-susceptible and methicillin-resistant *Staphylococcus aureus* from indoor home environments. *Appl Environ Microbiol.* 2012 Apr;78(7):2474-2476. PMID:PMC3306591
108. Miranda JJ, Bernabe-Ortiz a, Smeeth L, Gilman RH, Checkley; CRONICAS Cohort Study Group. Antonio Bernabé-Ortiz, Juan P Casas, George Davey Smith, Shah Ebrahim, Raúl Gamboa, Héctor H García, Robert H Gilman, Luis Huicho, Germán Málaga, J Jaime Miranda, Víctor M Montori, Liam Smeeth; Chronic Obstructive Pulmonary Disease: William Checkley, **Gregory B Diette**, Robert H Gilman, Luis Huicho, Fabiola León-Velarde, María Rivera, Robert A Wise; Training & Capacity Building: William Checkley, Héctor H García, Robert H Gilman, J Jaime Miranda, Katherine Sacksteder. CRONICAS Cohort Study :Cardiovascular Disease. *BMJ Open* 2012 Jan 11; 2(1):e000610.
109. Demissie S, Riekert KA, Eakin MN, Bilderback A, **Diette GB**, Okelo SO. How do perceptions of asthma control and severity relate to indicators of asthma status and treatment recommendations by pediatricians? *Pediatr Allergy Immunol Pulmonol.* 2012 Mar;25(1):17-23. PMID:PMC3306591
110. **Diette GB**, Accinelli RA, Balmes JR, Buist AS, Checkley W, Garbe P, Hansel NN, Kapil V, Gordon S, Lagat DK, Yip F, Mortimer K, Perez-Padilla R, Roth C, Schwaninger JM, Punturieri A, Kiley J. Obstructive lung disease and exposure to burning biomass fuel in the indoor environment. *Global Heart J* 2012;7(3)265-270.
111. Mahajan AK, **Diette GB**, Hatipoglu U, Bilderback A, Ridge A, Harris VS, Dalapathi V, Badlani S, Lewis S, Charbeneau JT, Naureckas ET, Krishnan JA. High frequency chest wall oscillation for asthma and chronic obstructive pulmonary disease exacerbations: A randomized sham-controlled clinical trial. *Respir Res.* 2011 Sept 10;12:120. PMID:PMC3179725
112. Torjusén EN, **Diette GB**, Breyse PN, Curtin-Brosnan J, Aloe C, Matsui EC. Dose-response relationships between mouse allergen exposure and asthma morbidity among urban children and adolescents. *Indoor Air.* 2013 Aug 23; (4):268-74.
113. Lin J, Matsui W, Aloe C, Peng RD, **Diette GB**, Breyse PN, Matsui EC. Relationships between Folate and inflammatory features of asthma. *J Allergy Clin Immunol.* 2012 Mar; 131(3):918-920.

114. Paulin LM, Williams D, Oberweiser C, **Diette GB**, Breyse PN, McCormack C, Matsui EC, Peng R, Metts TA, Hansel NN. Indoor air quality in central Appalachia homes impacted by wood and coal use. *J Environ Protection* 2013;4:67-71.
115. Bose S, Jun J, **Diette G**. High frequency chest wall oscillation successful in controlling refractory asthma. *J Asthma*. 2013 Mar; 50(2):219-221.
116. Okelo SO, Eakin MN, Patino CM, Teodoro AP, Bilderback AL, Thompson DA, Loiaza-Martinez A, Rand CS, Thyne S, **Diette GB**, Riekert KA. The pediatric asthma control and communication instrument asthma questionnaire: for use in diverse children of all ages. *J Allergy Clin Immunol* 2013 Jul;132(1):55-62.
117. Lu KD, Breyse PN, **Diette GB**, Curtin-Brosnan J, Aloe C, William DL, Peng RD, McCormack MC, Matsui EC. Being overweight increases susceptibility to indoor pollutants among urban children with asthma. *J Allergy Clin Immunol* 131(4):1017-1023. 2013. PMID: PMC3889705
118. McCormack M, Matsui E, **Diette GD**, Breyse P, Aloe C, Curtin-Brosnan J. Guideline-recommended fractional exhaled nitric oxide is a poor predictor of health care use among inner-city children and adolescents receiving usual asthma care. *Chest* 2013 Sep;144(3):923-9. PMID: PMC3760744
119. Jassal MS, **Diette GB**, Dowdy DW. Cost Consequence Analysis of Multimodal Interventions with Environmental Components for Pediatric Asthma in the State of Maryland. *J Asthma*. 2013;50(6):672-80.
120. Jamieson DB, Matsui EC, Belli A, McCormack MC, Peng E, Pierre-Louis S, Curtin-Brosnan J, Breyse PN, **Diette GB**, Hansel NN. Effects of Allergic Phenotype on Respiratory Symptoms and Exacerbations in Patients with COPD. *Am J Respir Crit Care Med*. 2013 Jul 15;188(2):187-92. PMID: PMC3778754
121. Hansel NN, McCormack MC, Belli A, Matsui EC, Peng RD, Aloe C, Paulin L, Williams DL, **Diette GB**. In-home air pollution is linked to respiratory morbidity in former smokers with COPD. *Am J Crit Care Med*. 2013 May 15;187(10):1085-90. PMID: PMC3734614
122. Ahluwalia SK, Peng RD, Breyse P, **Diette GD**, Curtin-Brosnan J, Aloe C, Matsui EC. Mouse allergen is the major allergen of public health relevance in Baltimore. *J Allergy Clin Immunol* 2013 Oct; 123(4):830-835. PMID: PMC3800085
123. Bose S, Breyse PN, McCormack M, Hansel NN, Rusher RR, Matsui E, Peng R, Curtin-Brosnan J, **Diette GB**. Outdoor exposure and vitamin D levels in urban children with asthma. *Nutrition J*, 2013 Jun 12;12(1):81.
124. Martin WJ 2nd, Glass RI, Araj H, Balbus J, Collins FS, Curtis S, **Diette GB**, Elwood WN, Falk H, Hibbert PL, Keown SE, Mehta S, Patrick E, Rosenbaum J, Sapkota A, Tolunay HE, Bruce NG. Household air pollution in low-and middle-income countries: health risks and research priorities. *PLoS Med*. 2013 Jun;10(6):e1001455.
125. Matsui EC, Hansel NN, Aloe C, Schiltz AM, Peng RD, Rabinovitch N, Ong MJ, Williams DL, Breyse PN, **Diette GB**, Liu AH. Indoor pollutant exposures modify the effect of airborne

endotoxin on asthma in urban children. *Am J Respir Crit Care Med* 2013 Nov 15;188(10):1210-5.
PMCID: PMC3863732

126. Okelo SO, Eakin MN, Riekert KA, Teodoro AP, Bilderback AL, Thompson DA, Loiaza-Martinez A, Rand CS, Thyne S, **Diette GB**, Patino CM. Validation of parental reports of asthma trajectory, burden, and risk by using the pediatric asthma control and communication instrument. *J Allergy Clin Immunol Pract* 2014 Mar-Apr; 2(2):186-192.
127. Okelo SO, Riekert KA, Eakin M, Bilderback A, Rand CS, **Diette GB**, Yenokyan G. Pediatrician qualifications and asthma management behaviors and their association with patient race/ethnicity. *J Asthma* 2014 Mar;51(2):155-161.
128. Sharma S, Zhou X, Thibault DM, Himes BE, Liu A, Szeffler SJ, Strunk R, Castro M, Hansel NN, **Diette GB**, Vonakis BM, Adkinson NF Jr, Avila L, Soto-Quiros M, Barraza-Villareal A, Lemanske RF Jr, Solway J, Krishnan J, White SR, Cheadle C, Berger SAE, Fan J, Boorgula MP, Nicolae D, Gilliland F, Barnes K, London SJ, Martinez F, Ober C, Celedon JC, Carey VJ, Weiss ST, Raby BA. A genome-wide survey of CD4 lymphocyte regulatory genetic variants identifies novel asthma genes. *J Allergy Clin Immunol* 2014; 134(5): 1153-1162.
129. Peng RD, Butz A, Hacksta A, Williams DL, **Diette GB**, Breyse P, Matsui E. Estimating the health benefit of reducing indoor air pollution in a randomized environmental intervention. *J Royal Statistical Society.* 2015; 178(2): 425-443.
130. Williams DL, McCormack M, Matsui EC, **Diette GB**, McKenzie SE, Geyh AS, Breyse PN. Cow allergen (Bos d 2) and Endotoxin Concentrations are higher in the settled dust of homes proximate to industrial scale dairy operations. *Journal of Exposure Science & Environmental Epidemiology.* Advance online publication] DOI: JES.2014.57, 2014
132. Hersh CP, Make BJ, Lynch DA, Barr RG, Bowler RP, Calverley PM, Castaldi PJ, Cho MH, Coxson HO, DeMeo DL, Foreman MG, Han MK, Harshfield BJ, Hokanson JE, Lutz S, Ramsdell JW, Regan EA, Rennard SI, Schroeder JD, Sciurba FC, Steiner RM, Tal-Singer R, van Beek E Jr, Silverman EK, Crapo JD, COPDGene and ECLIPSE Investigators. Non-emphysematous chronic obstructive pulmonary disease is associated with diabetes mellitus. *BMC Pulm Med.* 2014; 14: 164.
133. Kim V, Desai P, Newell JD, Make BJ, Washko GR, Silverman EK, Crapo JD, Bhatt SP, Criner GJ, COPDGene Investigators. Airway wall thickness is increased in COPD patients with bronchodilator responsiveness. *Respir Res.* 2014; 15:84.
134. Vachani A, Tanner NT, Aggarwal J, Mathews C, Kearney P, Fang KC, Silvestri G, **Diette GB**. Factors that influence physician decision making for indeterminate pulmonary nodules. *Annals of American Thoracic Society.* 2014; 11(10): 1586-1591.
135. Kaji DA, Belli AJ, McCormack MC, Matsui EC, Williams DL, Paulin L, Putcha N, Peng RD, **Diette GB**, Breyse PN, Hansel NN. Indoor pollutant exposure is associated with heightened respiratory symptoms in atopic compared to non-atopic individuals with COPD. *BMC Pulm Med.* 2014; 14:147.
136. Hackstadt AJ, Matsui EC, Williams DL, **Diette GB**, Breyse PN, Butz AM, Peng RD. Inference for environmental intervention studies using principal stratification. *Stat Med.* 2014; 33(28): 4919-4933.

137. Lee JH, McDonald ML, Cho MH, Wan ES, Castaldi PJ, Hunninghake GM, Marchetti N, Lynch DA, Crapo JD, Lomas DA, Coxson HO, Bakke PS, Silverman EK, Hersh CP; COPDGene and ECLIPSE Investigators. DNAH5 is associated with total lung capacity in chronic obstructive pulmonary disease. *Respir Res.* 2014; 15:97.
138. Wan ES, Castaldi PJ, Cho MH, Hokanson JE, Regan EA, Make BJ, Beaty TH, Han MK, Curtis JL, Curran-Everett D, Lynch DA, DeMeo DL, Crapo JD, Silverman EK; COPDGene Investigators. Epidemiology, genetics, and subtyping of preserved ratio impaired spirometry (PRISm) in COPDGene. *Respir Res.* 2014; 15:89.
139. Brigham EP, Kolahdooz F, Hansel N, Breyse PN, Davis M, Sharma S, Matsui EC, **Diette GB**, McCormack M. Association Between Western Diet Pattern and Adult Asthma: A Focused Review. *Annals of Allergy, Asthma & Immunology.* 2015; 114(4): 273-80.
140. Paulin LM, **Diette GB**, Blanc PD, Putcha N, Eisner MD, Kanner RE, Belli AJ, Christenson S, Tashkin DP, Han M, Barr RG, Hansel NN, SPIROMETRICS Research Group. Occupational Exposures are Associated with Worse Morbidity in Patients with COPD. *Am J Respir Crit Care Med.* 2015; 191(5): 557-565.
141. Jaganath D, Miranda JJ, Gilman RH, Wise RA, **Diette GB**, Miele CH, Bernabe-Ortiz A, Checkley W, CHONICAS Cohort Study Group. Prevalence of chronic obstructive pulmonary disease and variation in risk factors across four geographically diverse resource-limited settings in Peru. *Respiratory Research.* 2015; 16(1):40.
142. Kolahdooz F, Butler JL, Christiansen K, **Diette GB**, Breyse PN, Hansel NN, McCormack MC, Sheehy T, Gittelsohn J, Sharma S. Food and Nutrient Intake in African American Children and Adolescents Aged 5 to 16 Years in Baltimore City. *Journal of the American College of Nutrition.* 2015; 9:1-12.
143. **Diette GB**, Dalal AA, D'Souza Ao, Lunacsek OE, Nagar SP. Treatment patterns of chronic obstructive pulmonary disease in employed adults in the United States. *International Journal of Chronic Obstructive Pulmonary Disease.* 2015; 10:415-22.
144. McCormack MC, Belli AJ, Kahi DA, Matsui EC, Brigham EP, Peng RD, Sellers C, Williams DL, **Diette GB**, Breyse PN, Hansel NN. Obesity as a susceptibility factor to indoor particulate matter health effects in COPD. *Eur Respir J.* 2015; 45(5): 1248-57.
145. Bose S, Hansel NN, Tonorezos ES, Williams DL, Bilderback A, Breyse PN, **Diette GB**, McCormack MC. Indoor particulate matter associated with systemic inflammation in COPD. *Journal of Environmental Protection.* 2015; 6: 566-72.
146. Sussan T, Gajghate S, Chatterjee S, Mandke P, McCormick S, Sudini K, Kumar S, Breyse P, **Diette GB**, Sidhaye V, Biswal S. Nrf2 reduces allergic asthma in mice through enhanced airway epithelial cytoprotective function. *American Journal of Lung Cell Mol Physiol.* 2015; 309(1):L27-36.
147. Lerner AG, Bernabé-Ortiz A, Ticse R, Hernandez A, Huaylinos Y, Pinto ME, Málaga G, Checkley W, Gilman RH, Miranda JJ; CRONICAS Cohort Study Group. Type 2 diabetes and cardiac autonomic neuropathy screening using dynamic pupillometry. *Diabet Med.* 2015 Nov; 32(11): 1470-8.

148. Schwartz NG, Rattner A, Schwartz AR, Mokheles B, Gilman RH, Bernabe-Ortiz A, Miranda JJ, Checkley W; CRONICAS Cohort Study Group. Sleep Disordered Breathing in Four Resource-Limited Settings in Peru: Prevalence, Risk Factors, and Association with Chronic Diseases. *Sleep*. 2015 Sept; 38(9): 1451-9.
149. Tanner NT, Aggarwal J, Gould MK, Kearney P, **Diette G**, Vachani A, Fang KC, Silvestri GA. Management of Pulmonary Nodules by Community Pulmonologists: A Multicenter Observational Study. *Chest*. 2015; 148(6):1405-14.
150. Bazo-Alvarez JC, Quispe R, Peralta F, Poterico JA, Valle GA, Burroughs M, Pillay T, Gilman RH, Checkley W, Malaga G, Smeeth L, Bernabé-Ortiz A, Miranda JJ; PERU MIGRANT Study; CRONICAS Cohort Study Group. Agreement Between Cardiovascular Disease Risk Scores in Resource-Limited Settings: Evidence from 5 Peruvian Sites. *Crit Pathw Cardiol*. 2015; 14(2): 74-80.
151. Francis ER, Kuo CC, Bernabe-Ortiz A, Nessel L, Gilman RH, Checkley W, Miranda JJ, Feldman HI; CRONICAS Cohort Study Group. Burden of chronic kidney disease in resource-limited settings from Peru: a population-based study. *BMC Nephrol*. 2015; 16:114.
152. Benziger CP, Bernabé-Ortiz A, Gilman RH, Checkley W, Smeeth L, Málaga G, Miranda JJ; CRONICAS Cohort Study group. Metabolic Abnormalities Are Common among South American Hispanics Subjects with Normal Weight or Excess Body Weight: The CRONICAS Cohort Study. *PLoS One*. 2015; 10(11): e0138968.
153. Lutz SM, Cho MH, Young K, Hersh CP, Castaldi PJ, McDonald ML, Regan E, Mattheisen M, DeMeo DL, Parker M, Foreman M, Make BJ, Jensen RL, Casaburi R, Lomas DA, Bhatt SP, Bakke P, Gulsvik A, Crapo JD, Beaty TH, Laird NM, Lange C, Hokanson JE, Silverman EK; ECLIPSE Investigators.; COPDGene Investigators. A genome-wide association study identifies risk loci for spirometric measures among smokers of European and African ancestry. *BMC Genet*. 2015; 16:138.
154. Bernabé-Ortiz A, Carrillo-Larco RM, Gilman RH, Checkley W, Smeeth L, Miranda JJ; CRONICAS Cohort Study Group. Contribution of modifiable risk factors for hypertension and type-2 diabetes in Peruvian resource-limited settings. *J Epidemiol Community Health*. 2016; 70(1): 49-55.
155. Quispe R, Bazo-Alvarez JC, Burroughs Peña MS, Poterico JA, Gilman RH, Checkley W, Bernabé-Ortiz A, Huffman MD, Miranda JJ; PERU MIGRANT Study.; CRONICAS Cohort Study Group. Distribution of Short-Term and Lifetime Predicted Risks of Cardiovascular Diseases in Peruvian Adults. *J Am Heart Assoc*. 2015; 4(8): e002112.
156. Miele CH, Jaganath D, Miranda JJ, Bernabe-Ortiz A, Gilman RH, Johnson CM, **Diette GB**, Wise RA, Checkley W; CRONICAS Cohort Study Group. Urbanization and Daily Exposure to Biomass Fuel Smoke Both Contribute to Chronic Bronchitis Risk in a Population with Low Prevalence of Daily Tobacco Smoking. *COPD*. 2016; 13(2): 186-95.
157. Ruiz-Grosso P, Miranda JJ, Gilman RH, Walker BB, Carrasco-Escobar G, Varela-Gaona M, Diez-Canseco F, Huicho L, Checkley W, Bernabe-Ortiz A; CRONICAS Cohort Study Group. Spatial distribution of individuals with symptoms of depression in a periurban area in Lima: an example from Peru. *Ann Epidemiol*. 2016; 26(2): 93-9.

158. Gaviola C, Miele CH, Wise RA, Gilman RH, Jaganath D, Miranda JJ, Bernabe-Ortiz A, Hansel NN, Checkley W; CRONICAS Cohort Study Group. Urbanisation but not biomass fuel smoke exposure is associated with asthma prevalence in four resource-limited settings. *Thorax*. 2016; 71(2): 154-60.
159. Sulaiman I, Mac Hale E, Holmes M, Hughes C, D'Arcy S, Taylor T, Rapcan V, Doyle F, Breathnach A, Seheult J, Murphy D, Hunt E, Lane SJ, Sahadevan A, Crispino G, **Diette G**, Killane I, Reilly RB, Costello RW. A protocol for a randomised clinical trial of the effect of providing feedback on inhaler technique and adherence from an electronic device in patients with poorly controlled severe asthma. *BMJ Open*. 2016; 6(1): e009350.
160. Engelgau MM, Sampson UK, Rabadan-Diehl C, Smith R, Miranda J, Bloomfield GS, Belis D, Narayan KM; National Health, Lung, and Blood Institute–UnitedHealth Global Health Centers of Excellence Collaborators. Tackling NCD in LMIC: Achievements and Lessons Learned From the NHLBI-UnitedHealth Global Health Centers of Excellence Program. *Glob Heart*. 2016; 11(1): 5-15.
161. Zavala-Loayza JA, Benziger CP, Cárdenas MK, Carrillo-Larco RM, Bernabé-Ortiz A, Gilman RH, Checkley W, Miranda JJ; CRONICAS Cohort Study Group. Characteristics Associated With Antihypertensive Treatment and Blood Pressure Control: A Population-Based Follow-Up Study in Peru. *Glob Heart*. 2016; 11(1): 109-19.
162. Quispe R, Benziger CP, Bazo-Alvarez JC, Howe LD, Checkley W, Gilman RH, Smeeth L, Bernabé-Ortiz A, Miranda JJ; CRONICAS Cohort Study Group. The Relationship Between Socioeconomic Status and CV Risk Factors: The CRONICAS Cohort Study of Peruvian Adults. *Glob Heart*. 2016; 11(1): 121-130.e2.
163. Sudini K, **Diette GB**, Breyse PN, McCormack MC, Bull D, Biswal S, Zhai S, Brereton N, Peng RD, Matsui EC. A Randomized Controlled Trial of the Effect of Broccoli Sprouts on Antioxidant Gene Expression and Airway Inflammation in Asthmatics. *J Allergy Clin Immunol Pract*. 2016; 4(5): 932-40.
164. McCormack MC, Belli AJ, Waugh D, Matsui EC, Peng RD, Williams DL, Paulin L, Saha A, Aloe CM, **Diette GB**, Breyse PN, Hansel NN. Respiratory Effects of Indoor Heat and the Interaction with Air Pollution in Chronic Obstructive Pulmonary Disease. *Ann Am Thorac Soc*. 2016; 13(12): 2125-2131.
165. Peters KO, Williams AL, Abubaker S, Curtin-Brosnan J, McCormack MC, Peng R, Breyse PN, Matsui EC, Hansel NN, **Diette GB**, Strickland PT. Predictors of polycyclic aromatic hydrocarbon exposure and internal dose in inner city Baltimore children. *J Expo Sci Environ Epidemiol*. 2017; 27(3): 290-298.
166. Ludwig S, Jimenez-Bush I, Brigham E, Bose S, **Diette G**, McCormack MC, Matsui EC, Davis MF. Analysis of home dust for *Staphylococcus aureus* and staphylococcal enterotoxin genes using quantitative PCR. *Sci Total Environ*. 2017; 581-582: 750-755.
167. Bernabé-Ortiz A, Carrillo-Larco RM, Gilman RH, Checkley W, Smeeth L, Miranda JJ; CRONICAS Cohort Study Group. Impact of urbanisation and altitude on the incidence of, and risk factors for, hypertension. *Heart*. 2017; In Press.

EXTRAMURAL FUNDING:

Current Funding:

09/01/2015-08/31/2019	Obesity Enhances Susceptibility to Pollutant Effects in Asthma NIH/NIEHS P50ES018176 Annual Direct: \$1,051,797 PI: Hansel Role: Co-Director, 25% OBesity Enhances Susceptibility to Pollutant Effects in Asthma (OBESE ASTHMA), will study mechanisms by which obesity leads to enhanced susceptibility to pollutants (particulate matter with aerodynamic diameter < 2.5 µm (PM2.5) and ultrafine particles (UFP)) leading to increased asthma morbidity in children.
07/01/2015-06/30/2020	Comparing Urban and Rural Effects of Poverty on COPD (CURE COPD) NIH/NIEHS P50ES026096 Annual Direct: \$693,432 PI: Hansel Role: Co-Director, 5% Comparing Urban and Rural Effects of Poverty on COPD (CURE COPD) Annual Direct Cost: \$693,432 Principal Investigator, 23% effort The aim of our Center, Comparing Urban and Rural Effects of poverty on COPD (CURE COPD), is to understand these interactive effects (high indoor air pollution, obesity and pro-inflammatory diets) in both urban (Project 1) and rural (Project 2) low income communities, both of which suffer disproportionate prevalence and morbidity from COPD.
09/01/2012-08/31/2017	K-24 Mentoring and Patient Oriented Research in Asthma NIH/NIEHS K24ES021098 Annual Direct: \$182,540.00 Grant Number 1133451 PI: Diette Role: Principal Investigator, 6.0 calendar months A major focus of this proposal will be to expand the present research program from inner city children to also include inner city adults with asthma. With this expansion in the research program, the candidate will provide the foundation for future trials in adults of home-based multi-component environmental interventions, goals which are concordant with the career goals of current mentees and will establish the infrastructure for future mentees with a research interest in adult asthma
09/01/2009-07/31/2015	Title: Mechanisms of asthma-dietary interventions against environmental triggers (No cost extension) P01 ES018176 NIH/NIEHS/EPA Total Direct \$4,999,821 (\$970,685 Year 3) PI/PD: Diette Roles: Program Director, Administrative Core Leader, Project 1 Leader. 3.0 calendar months

Goals: The long-term goal of the **ASTHMA-DIET** (A Study to understand The Mechanisms of Asthma--Dietary Interventions to protect against Environmental Triggers) Program is to understand how diet influences the asthmatic response to indoor and outdoor airborne pollutants and allergens, with the expectation of translating these findings into practical dietary strategies to improve pediatric asthma health.

- 09/07/2010-04/30/2015 Genetic susceptibility to asthma and indoor air pollution in Peru
R01 ES018845
NIH/NIEHS
Annual Direct Cost: \$433,836
PI: Hansel
Role: Co-Investigator, 1.20 calendar months
The goal of this proposal is to examine the contribution of genetic susceptibility to the adverse effects of indoor air pollution (particulate matter and nitrogen dioxide) on asthma health in a Hispanic population.
- 02/18/2011-12/31/2015 Statistical methods for complex environmental health data.
R01 ES019560
NIH/NIEHS
Annual Direct: \$243,746
PI: Peng
Role: Co-Investigator, 0.60 calendar months
This project will develop a spatial-temporal Bayesian hierarchical multivariate receptor model for identifying sources of air pollution chemical mixtures and estimating their effect on population health outcomes. Innovation focuses on (a) conducting an integrated national assessment of the health effects of pollution sources; (b) the use of spatial-temporal models for source apportionment; and (c) the introduction of national databases on source profiles and emissions to inform model development and parameter estimation. These methods will be applied to data from a national study of air pollution and health outcomes, the Medicare Cohort Air Pollution Study, to (a) estimate short-term population health effects of PM sources on a national, regional, and local scale; (b) estimate short- and long-term health effects of PM constituents and identify the sources of toxic constituents

PAST (most recent 5 years only)

- 09/14/2007-08/31/2013 SCCOR: Mechanisms and Treatment of COPD Progression
(NCE) 1P50HL084945-01
NIH/NHLBI
Annual Direct \$1,957,399
Program Director: Wise
Role: Core C Leader, 1.2 calendar months
The overall goal of this SCCOR program is to understand the complex interplay of mechanisms that promote the progression of COPD and to translate that understanding into treatments that can benefit persons who suffer from COPD.
- 09/29/2007-06/30/2013 Center for Childhood Asthma in the Urban Environment

(NCE)	The Role of Particulate Matter and Allergens in Oxidative Stress in Asthma (DISCOVER) 1P50ES015903 NIH/NIEHS Annual Direct \$ 1,607,733 PI/PD: Breyse Roles: Co-Program Director; Project Leader, Project 1 (1.2 calendar months); Co-Investigator, Administrative Core (1.8 calendar months) The long-term goals of this Center are to examine how exposures to environmental pollutants and allergens may relate to airway inflammation and respiratory morbidity in children with asthma living in the inner city of Baltimore, and to search for new ways to reduce asthma morbidity by reducing exposure to these agents.
07/01/2008-06/30/2013	The Impact of Indoor Particulate Matter Exposure on Non-allergic Asthma 5K23 ES016819 NIH/NIEHS Total Direct: \$755,875 PI: McCormack Role: Mentor, no salary support K23 Mentored Patient-Oriented Research Career Development Award The goal of this project is to examine adverse effects of coarse indoor PM. Using a study design that combines a longitudinal panel study and an exposure challenge model the research will demonstrate a causal relationship between indoor coarse PM exposure and exacerbation of asthma status.
07/01/2010-06/30/2012	Vitamin D and Susceptibility to Inhaled Pollutants in Urban Children with Asthma NIH Total Direct: \$187,645 PI: Bose Role: Primary Mentor NRSA. The goal of this study is to identify the role of vitamin D upon the effects of inhaled pollutants upon asthma severity in inner-city children.
07/01/2011-09/24/2012	Interventions to Modify Adherence to Asthma Guidelines HHSA 290 2007 10061 I Agency: AHRQ Annual Direct Costs: \$260,643 PI: Eric Bass Role: Co-PI The objective of this CER is to determine the comparative effectiveness of interventions to modify the adherence of health care providers to asthma guidelines.
12/15/2008-12/14/2011	Intervention trial to reduce nitrogen dioxide and carbon monoxide concentrations in Baltimore City homes FR-5200-N-01A HUD Annual Direct \$271,415

	<p>PI: Hansel Role: Co-Investigator, 0.96 calendar months The purpose of this research is to conduct a randomized intervention trial aimed at reducing indoor nitrogen dioxide and carbon monoxide concentrations in homes.</p>
<p>07/08/2009-06/30/2011</p>	<p>Effect of Fenzian treatment on symptoms, pulmonary function and Albuterol use in patients with mild persistent asthma: A multi-center, sham-controlled clinical trial Fenzian, Inc. (Formerly Eumedics) Annual Direct: \$88,433 PI: Diette, 1.20 calendar months The purpose of the study is to test the efficacy of Fenzian treatment over five weeks to improve asthma control, pulmonary function, symptoms and bronchodilator use.</p>
<p>07/01/2006-06/30/2011</p>	<p>Mouse Allergen and Inner-City Asthma 1R01 A1070630-01 NIH/NIAAD Annual Direct \$225,000 PI: Matsui Role: Co-Investigator, 0.60 calendar months The primary aims of this project are (1) to examine the link between household mouse allergen exposure and asthma morbidity, and (2) to determine the diagnostic utility of allergy skin testing in predicting allergic airways responses to mouse allergen.</p>
<p>12/26/2003-01/30/2011</p>	<p>Evaluation of home automated tele-management in COPD. R01 AI070630 NIH Annual Direct: \$225,000 PI: Finkelstein Role: Co-Investigator, 0.60 calendar months The goal of this project is to evaluate the impact of home tele-management in COPD patients.</p>
<p>12/01/2005-11/30/2010</p>	<p>A Multicenter Randomized Clinical Trial: Asthma Intervention Research (AIR2 Trial) Asthmatix, Inc Annual Direct \$313,504 PI: Yung Role: Co-Investigator, 0.12 calendar months The goal of this trial is to assess the safety and effectiveness of the Alair system for the treatment of asthma.</p>
<p>11/1/2003-10/31/2009</p>	<p>Center for Childhood Asthma in the Urban Environment P01 R-826724/P01 ES09606 (Breyse) NIH/EHS/EPA Annual Direct \$918,780 PI: Breyse</p>

Roles: Deputy Program Director; PI of Epidemiology Component, Co-Investigator, 1.5 calendar months

The long term goals of this Center were to examine how exposures to environmental pollutants and allergens might relate to airway inflammation and respiratory morbidity in children with asthma living in the inner city of Baltimore, and to search for new ways to reduce asthma morbidity by reducing exposure to these agents.

09/30/2003-06/30/2009

SCCOR: Ventilator associated lung injury: Molecular approaches

P50 HL073944-03 (Brower)

NIH/NHLBI

Annual Direct \$2,790,934

PI/PD: Brower

Role: Core Leader, Core B, Data Management Core, 0.60 calendar months

This SCCOR was focused on understanding the complex interplay between mechanical ventilation and the increased morbidity and mortality associated with acute lung injury. The application had interactive Cores using state of the art approaches to provide understanding of critical pathobiologic processes in ventilator-associated lung injury and to define key genetic determinants relevant to acute lung injury.

09/30/2004-08/31/2009

Genetics of Asthma Severity and Lung Function Decline

K23 HL76322 -02

NIH/NHLBI

Annual Direct \$148,250

PI: Hansel

Role: Primary Mentor, effort as needed

The goal of this study was to identify genetic polymorphisms that mark high risk individuals for early intervention to decrease asthma morbidity.

09/10/2001-08/31/2006

Improving physician adherence to asthma guidelines

K23 HL04266

NIH

Annual Direct \$146,772

Role: Principal Investigator, 9.0 calendar months

Provide mentored training and research period for early career development.

Improve physician adherence to national asthma guidelines

09/01/2002-07/31/2007

Baltimore Asthma Severity Study

R01 HL67905 (Ford)

NIH

Annual Direct \$443,417

PI: Ford

Role: Co-Investigator, 0.6 calendar months

The objective of this study was to provide insight into the genes controlling susceptibility to human asthma and promote the development of novel therapeutics.

9/01/2002-08/31/2007

Improving Respiratory Outcomes in ALS

K23 HL67887 (Lechtzin)

NIH

Annual Direct \$121,750

PI: Lechtzin

Role: Advisor (effort as needed)

The overall theme of this award is to study various aspects of non-invasive positive pressure ventilation in patients with ALS with the goal of improving respiratory management of these patients.

2007-2008 (NCE)

Howard/Hopkins Center for Reducing Asthma Disparities

HL072455

NIH/NHLBI

Annual Direct \$513,475

PI: Rand

Role: Leader, Project 1, 1.5 calendar months, no cost extension

This application presents four research projects designed to collaboratively investigate factors associated with the disproportionate burden of asthma experienced by inner-city, African-American children and adults.

09/30/2004-06/30/2008

Improving asthma care for minority children in Head Start

R18 HL73833

NIH

Annual Direct \$625,506

PI: Rand

Role: Co-Investigator, 0.6 calendar months

The goal of this project is to study the effect communication intervention on asthma-related morbidity and mortality among low-income African American children.

02/23/2004-12/31/2006

A randomized, sham-controlled, double-blinded pilot study to assess the effect of high frequency chest wall oscillation therapy in patients with chronic bronchitis

Advanced Respiratory

PI: Diette, 0.12 calendar months

10/01/2007-09/30/2009

Randomized clinical trial

Protocol #: CQAB149B2335S

Novartis

Total Direct Costs: \$161,368

PI: Diette, 1.20 calendar months

A 26-week treatment, multicenter, randomized, double-blind, double dummy, placebo-controlled, adaptive, seamless, parallel-group study to assess the efficacy, safety and tolerability of two doses of indacaterol (selected from 75, 150, 300 & 600 ug o.d.) in patients with chronic obstructive pulmonary disease using blinded formoterol (12 ug b.i.d.) and open label tiotropium (18 ug o.d.) as active controls.

EDUCATIONAL ACTIVITIES

Educational Publications

Invited Review Articles

1. Robinson L, Diette GB. Best Practices for Insertion of Central Venous Catheters in Intensive Care Units to Prevent Catheter-Related Bloodstream Infections. *Journal of Laboratory and Clinical Medicine* 2004;143:5-13.
2. Sharma HP, Hansel NN, Matsui EC, Diette GB, Eggleston PA, Breysee PN. Indoor Environmental Influences on Children's Asthma. *Pediatric Clinics North America*. 2007;54:103-120
3. Hansel NN and Diette GB. Gene Expression Profiling in Human Asthma. *Proc Am Thorac Soc*. 2007; 4(1):32-6.
4. **Diette GB**, Rand C. The Contributing Role of Health-Care Communication to Health Disparities for Minority Patients with Asthma. *Chest*. 2007 Nov;132(5 Suppl):802S-9S.
5. **Diette GB**, McCormack MC, Hansel NN, Breysee PN, Matsui EC. Environmental issues in managing asthma. *Respiratory Care*. 2008;53(5):602-15; discussion 616-7.
6. Matsui EC, Hansel NN, McCormack MC, Rusher R, Breyse P, **Diette GB**. Asthma in the Inner City and the Indoor Environment. *Immunology Allergy Clinics North America*. 2008;28:665-686.
7. Okelo SO, Butz AM, Sharma R, **Diette GB**, Pitts SI, King TM, Linn ST, Reuben M. Chelladurai Y, Robinson KA. Interventions to modify health care provider adherence to asthma guidelines: A systemic review. *Pediatrics*. 2013 Sep;132(3):517-34.

Editorials

1. Krishnan JA, **Diette GB**, Rand CS. Disparities in Outcomes from Chronic Disease: Impaired Patient-Physician Partnerships May Be an Important Cause in Minorities. *British Medical Journal* 2001;323:950.
2. Alberg A, **Diette GB**, Ford J. Attendance and absence as markers of health status: The example of active and passive cigarette smoking. *American Journal of Epidemiology* 2003 May 15;157(10):870-3.
3. **Diette GB**, Clinical Commentary: Overuse of β 2-agonists. *J Resp Diseases* 2000;21:721.

Case Reports

None.

Letters

1. Patil S, Krishnan JA, Lechtzin N, **Diette GB**. In-hospital mortality following acute exacerbation of chronic obstructive pulmonary disease. *Archives of Internal Medicine*. 2004 Jan 26;164:222-223.
2. **Diette GB**, Wu AW. Elderly asthmatic patients. *Archives of Internal Medicine*. 2003 Jan 13;163:1:122.

4. Clerisme-Beaty EM, Rand C, **Diette GB**. Reply to Farah. Weight loss in asthma: More evidence is needed. Reply to Farah. *Journal of Allergy and Clinical Immunology* 2010 125(3):770. PMID: PMC2908807.

Book Chapters:

1. **Diette G**, Brower R. Traditional Invasive Ventilation. In, Pulmonary Respiratory Therapy Secrets, 2nd Edition, Parsons P and Heffner J, Eds., Philadelphia, Hanley & Belfus, 2002.
2. **Diette G**, Brower R. Traditional Invasive Ventilation. In, Pulmonary Respiratory Therapy Secrets, Parsons P and Heffner J, Eds., Philadelphia, Hanley & Belfus, 1997.
3. **Diette G**. Pleural Effusion. In, *Mosby's Success in Medicine Specialty Clinical Sciences*, Donnelly JL, Ed., Mosby, 1996.
5. **Diette G**. Pneumothorax. In, *Mosby's Success in Medicine Specialty Clinical Sciences*, Donnelly JL, Ed., Mosby, 1996.
6. **Bose S, Diette GB**. Health disparities related to environmental air quality. In: *Health Disparities in Respiratory Medicine*. Eds: Gerald L and Berry C. Springer. In press.

Internet:

Diette GB, Liu MC. Disease Update on Asthma. Medcast Networks. [Released March 1, 1999]

Okelo SO, Butz AM, Sharma R, **Diette GB**, Pitts SI, King TM, Linn ST, Reuben M, Chelladurai Y, Robinson KA. Interventions to modify health care provider adherence to asthma guidelines [Internet]. Rockville MD: Agency for Healthcare Research and Quality (US); 2013 May.

Reports:

1. Wu A, **Diette GB**, Skinner E, Clark R, Steinwachs D. Treatment Patterns Among Adult Asthmatics: Factors Associated with High Use of Inhaled β -agonists, Low Use of Inhaled Corticosteroids, and Nocturnal Symptoms. Submitted to Merck & Co., Inc., July 1997.
2. Steinberg EP, Holtz PM, Greenwald TP, **Diette GB**, Wills S, Webb A, Daugherty L, Caravoulas CL, Gabrielsen M, Pomponio C. Report of results of a pilot test of draft NCQA HEDIS measures of health plan performance in control of blood pressure among diagnosed hypertensives. Submitted to the NCQA Hypertension Measure Advisory Committee, July 1998.
3. Wu AW, Skinner EA, **Diette GB**, Nguyen TTH, Clark RD. Quality of Care and Outcomes for Childhood Asthma in Managed Care: Validation of the Asthma Therapy Assessment Questionnaire. Submitted to Merck & Co., Inc., November 1998.
4. **Diette GB**, Krishnan JA, Lechtzin N, Belcastro D. Evidence Report on Chronic Obstructive Pulmonary Disease: Treatment and Risks. Submitted to CardioContinuum, September 1999.
5. Wu AW, **Diette GB**, Dominici F, Skinner EA. The 1998 Asthma Outcomes Survey: Phase I Final Report. Submitted to the Pacific Business Group on Health, October 1999.

6. **Diette GB**, Krishnan JA, Lechtzin N, Belcastro D. Report on Focus Group of Clinician Experts on Treatment of Chronic Obstructive Pulmonary Disease. Submitted to CardioContinuum, September 1999.
7. **Diette GB**, Qutami M, Sullivan B. Report on Cystic Fibrosis Utilization and Asthma Utilization and Medication Use. Submitted to Aerogen, December 1999.
8. **Diette GB**, Rand C, Wise RA, Thompson K, Merriman B. Pilot Study of Alternative Treatment Settings of High Frequency Chest Wall Oscillation in Patients with Chronic Bronchitis. Submitted to Advanced Respiratory, Inc, December 2003.

Teaching

Classroom Instruction

- | | |
|-------------|--|
| 1993-1994 | Instructor, Course on Clinical Management in the Emergency Department, University of Pennsylvania Department of Emergency Medicine |
| 12/1993 | Instructor, First Aid for First Year Medical Students, University of Pennsylvania School of Medicine |
| 1996 & 1999 | Clinical Faculty for Human Anatomy Discussion Group, Heart and Lungs, Johns Hopkins University School of Medicine |
| 1997-2000 | Instructor, Evidence-Based Medicine Rotation for Medical Interns, Chronic Obstructive Pulmonary Diseases, Department of Medicine, Johns Hopkins Bayview Medical Center |
| 1997 & 2000 | Discussion Leader, Organ Systems Course, Pulmonary Physiology Section, Johns Hopkins University School of Medicine |
| 1997 | Teaching Assistant, The Science of Clinical Investigation: Design of Clinical Studies. Johns Hopkins University School of Hygiene and Public Health |
| 1998 | Lecturer, Clinical Skills Course: The Pulmonary Examination, Johns Hopkins University School of Medicine |
| 1999 & 2000 | Discussion Leader, Pathophysiology Course, Pathophysiology of Shock, Johns Hopkins University School of Medicine |
| 1999 | Lecturer, Advanced Research Methods, International Respiratory Epidemiology Course, American Thoracic Society, Cusco, Peru |
| 1999-2002 | Co-Director. The Science of Clinical Investigation: Design of Clinical Studies. Johns Hopkins University School of Hygiene and Public Health |
| 2000-2003 | Lecturer, Patient Outcomes and Quality of Care Course, Department of Health Policy and Management, Johns Hopkins University School of Hygiene and Public Health |
| 2000 | Lecturer, Advance Research Methods, International Respiratory Epidemiology Course, |

American Thoracic Society, Quinamavida, Chile

- 2001 Discussion Leader, Clinical Epidemiology, Department of Epidemiology, Johns Hopkins University, April 2001.
- 2003 Co-Director. Advanced Research Methods, International Respiratory Epidemiology Course, American Thoracic Society, Buenos Aires, Argentina
- 2004 Director. Advanced Research Methods, Method in Epidemiologic, Clinical and Operations Research, American Thoracic Society, Punta del Este, Uruguay
- 2005 Faculty. Methods in Clinical Research. ERS/ATS School Course. Prague, Czech Republic,
- 2005 Director. Advanced Research Methods, Methods in Epidemiologic, Clinical and Operations Research, American Thoracic Society, Quito, Ecuador
- 2006 Director. Advanced Research Methods, Methods in Epidemiologic, Clinical and Operations Research, American Thoracic Society, Alphaville, Brazil.
- 2007-Present Attending Physician, the Barker Firm, Johns Hopkins University School of Medicine

Continuing Medical Education

- 2010 Managed care strategies used in the successful treatment of asthma. National Asthma Education and Prevention Program. Medical Communications Media, Inc.

Mentoring (pre- and post-doctoral):

Advisees

- 2012-Present Emily Bingham, MD
Post-doctoral Fellow, Division of Pulmonary and Critical Care Medicine
- 2011-Present Laura M. Paulin, MD
Post-doctoral Fellow, Division of Pulmonary and Critical Care Medicine
- 2012-Present Jessica Rice, MD
Post-doctoral Fellow, Department of Pediatrics
- 2010-2014 Niru Putcha, MD
Post-doctoral Fellow, Division of Pulmonary and Critical Care Medicine
- 2010-2011 Daniel Jamieson, MD
Post-doctoral Fellow, Division of Pulmonary and Critical Care Medicine
- 2009-Present Sonali Bose, MD, MPH
Post-doctoral Fellow, Division of Pulmonary and Critical Care Medicine
Research Theme: Vitamin D levels in urban black children with asthma

Current Position: Instructor of Medicine, Pulmonary and Critical Care Medicine

- 2009-2010 Marisha Cook, MD
Post-doctoral Fellow, Division of Allergy and Clinical Immunology
Research Theme: Dietary pattern differences by race in asthma
Current Position: Post-doctoral Fellow, Allergy & Clinical Immunology
- 2008-2009 Timothy Scialla, MD
Post-doctoral Fellow, Division of Pulmonary and Critical Care Medicine
Research Theme: Inner City Diet and Asthma
Current Position: Assistant Professor of Medicine, University of Miami, Miami, Florida
- 2006-2007 Sabine Karem, MD
Post-doctoral Fellow, Division of Pulmonary and Critical Care Medicine
Research Theme: Asthma Control in African-Americans
Current Position: Internal Medicine Resident, Montifiore Hospital, Bronx, NY
- 2005-2006 Lindsey Kim
MPH student, School of Hygiene and Public Health
Thesis: Outcomes Study on Environmental Control Practices on Health of Inner-City Children with Asthma
- 2005-2007 Emily Smith Tonorezos
Post-Doctoral Fellow, Division of General Internal Medicine
Research Theme: Diabetes as a modifying factor on the effect of particulate matter in COPD
Current Position: Assistant Professor of Medicine, Memorial Sloan Kettering, New York.
- 2005-2008 Meredith C. McCormack, MD, MHS
Post-Doctoral Fellow, Division of Pulmonary and Critical Care Medicine
Awarded Chest Foundation Award for Women's Studies, Loan Repayment Program, NIH K-23 Award, Johns Hopkins Bloomberg School of Public Health Faculty Grant in Global Health, and Pearl M. Stetler Research Fund
Research Theme: Particulate Matter Effects on Asthma and COPD
Current Position: Assistant Professor of Medicine, Johns Hopkins University, Baltimore, Maryland
- 2004-2006 Amit Rahman
Medical Student, Johns Hopkins University, School of Medicine
Research Theme: Co-Morbidity COPD Outcomes
- 2004-2005 Alan Salas
Under-represented Minority Summer Research Program
Undergraduate Student, Johns Hopkins University, Baltimore, MD
Research Theme: Early Life Exposures and Risk of Asthma
- 2002-2003 Deanna Perez Williams
Community Health Scholars Program, Kellogg Foundation

Research Theme: Development of a Culturally-Sensitive, Patient-Focused Asthma Communication Instrument Designed to Enhance Provider-Patient Communication in Hispanics in Baltimore
Current Position: Howard University

2002-2004 Elizabeth C. Matsui, MD
Post-Doctoral Fellow, Division of Allergy and Immunology, Department of Pediatrics, Johns Hopkins University
Research Theme: Mouse allergen exposure, antibody responses, prick skin test response and allergy symptoms in laboratory workers
Current Position: Associate Professor of Pediatrics. Division of Allergy and Immunology, Department of Pediatrics, Johns Hopkins University

2002-2004 Necole Streeper, MD
Minority Summer Research Program
Research Theme: Physician Underestimation of Self-Management Ability of African-Americans with Asthma
Current Position: Resident, Dept of Urology, University of Texas HSC, San Antonio, TX

2002-2004 James Lee, MD
Housestaff, Internal Medicine, Johns Hopkins Hospital
Research Theme: Gender Differences in Childhood Asthma
Current Position: Assistant Professor of Medicine, Division of Pulmonary, Allergy and Critical Care Medicine, Hospital of the University of Pennsylvania, Philadelphia, PA

2002-2007 Cecilia Patino, MD
Research Associate, Division of Pulmonary and Critical Care Medicine
Research Theme: (1) Physician Adherence to Asthma Guidelines; (2) Validation of Survey Methods of Environmental Assessment
Current Position: Assistant Professor, Department of Preventive Medicine, University of Southern California, Los Angeles, CA

2001-2003 Marianelle Platon, MD
Under-represented Minority Summer Research Program
Research Theme: Validation of Physician Reported Adverse Events during Bronchoscopy
Current Position: Physician, National Naval Medical Center, Bethesda, Maryland

2001-2004 Lucian Davis, MD
Housestaff, Internal Medicine, Johns Hopkins Hospital
Research Theme: Predictors of New-Onset Dyspnea in COPD
Current Position: Assistant Adjunct Professor, Division of Pulmonary and Critical Care Medicine, University of California, San Francisco, San Francisco.

2001-2005 Susan Gerhardt, MD
Post-Doctoral Fellow, Division of Pulmonary and Critical Care Medicine
Awarded Pearl M. Stetler Research Grant
Research Theme: Treatment of Bronchiolitis Obliterans in Lung Transplant Rejection
Current Position: Private Practice, Pennsylvania

2000-2005 Lewis J. Robinson, MD

- Post-Doctoral fellow, Division of Pulmonary and Critical Care Medicine
Research theme: National Guidelines and Central Venous Catheter Infections in the Intensive Care Unit
Current Position: Assistant Professor, Division of Pulmonary and Critical Care Medicine, University of Washington, Seattle.
- 2000-2003 Sande Okelo, MD
Post-Doctoral fellow, Division of Pediatric Pulmonary Medicine
Research theme: Emotional Function and Asthma Morbidity in Children
Awarded NIEHS Minority Supplement Award
Awarded ATS Minority Travel Award
Current Position: Assistant Professor, Department of Pediatrics, David Geffen School of Medicine at UCLA, Mattel Children's Hospital UCLA, Los Angeles, CA
- 2000-2004 Nadia N. Hansel, MD, MHS
Post-Doctoral fellow, Division of Pulmonary and Critical Care Medicine
Awarded Howard C. and Jane R. Goodman Award
Awarded the Baurernschmidt Fellowship Award from Eudowood Foundation
Awarded Chest Foundation Award for Women's Studies
Awarded American Thoracic Society Underrepresented Minority Travel Award
Research themes: 1) Quality of Life in Tuberculosis; 2) Th1/Th2 phenotype in tuberculosis and asthma.
Current Position: Associate Professor of Medicine, Johns Hopkins University
- 1999-2001 Edward Cox, Jr., MD, MPH
MPH student, School of Hygiene and Public Health
Project: Association of Hospital Volume and In-Hospital Mortality among Patients with Community-Acquired Pneumonia
Current Position: Director, Office of Antimicrobial Products (OAP) Food and Drug Administration, Rockville, Maryland
- 1999-2001 Noah Lechtzin, MD, MPH
Post-Doctoral fellow, Division of Pulmonary and Critical Care Medicine
Awarded Travel Award for Poster Presentation at 2001 American Thoracic Society International Meeting
Research theme: Respiratory manifestations of ALS: 1. Measures of disease burden; 2. Improving patient outcomes.
Current Position: Associate Professor of Medicine, Johns Hopkins University.
- 1998-2001 Jerry A. Krishnan, MD, PhD
Post-Doctoral fellow, Division of Pulmonary and Critical Care Medicine.
Awarded Chest Foundation Research Award for "Assessment of Gender and Race Differences in Quality of Care and Clinical Outcomes from Asthma."
Research theme: Quality of care and outcomes for asthma by gender and race
Current Position: Professor of Medicine, University of Illinois, Chicago.
- 1998-1999 Su Wang
MPH student, School of Hygiene and Public Health

Thesis: Nocturnal Symptoms in Pediatric Asthma: Clinical Features and Health Care
Utilization in a Managed Care Setting
Current Position: Unknown.

1997-2002 Lindy Wolfenden, MD
Housestaff, Internal Medicine, Johns Hopkins Hospital
Post-Doctoral Fellow, Division of Pulmonary and Critical Care Medicine
Research Theme: Older Adults and Asthma
(Deceased.)

Thesis committees

07/2014 Kamau Peters, Doctoral Candidate in Environmental Health Sciences.
Role: Thesis Advisor and Final Oral Examination Committee Member.

04/2013 María Fernanda Cely-García, Doctoral Candidate, Universidad de Los Andes,
Bogotá Columbia (*Personal exposures to asbestos and respiratory health of automotive mechanics in
Bogotá, Columbia*)
Role: Thesis advisor and Final Oral Defense Committee Member

04/2010 Deanna M. Green, Doctoral Candidate in Environmental Health Sciences
Role: Thesis Advisor and Final Oral Defense Committee Member

10/2008 Maura Dwyer, Doctoral Candidate in Environmental Health Sciences
Role: Final Oral Defense Committee Member

10/2007 Juan Ramos Bonilla, Doctoral Candidate in Environmental Health Sciences
Role: Final Oral Defense Committee Member

12/2006 Sorina Eftin, Doctoral Candidate in Environmental Health Sciences
Role: Thesis Committee Chair

04/2005 Laura LaRosa, Doctoral Candidate in Environmental Health Engineering
Role: Final Oral Defense Committee Member

11/2005 Kannika Taenkhum, Doctoral Candidate in Environmental Health Engineering
Role: Preliminary Orals Committee Member

12/2005 Sande Okele, Doctoral Candidate in Graduate Training Program in Clinical Investigation
Role: Final Oral Defense Committee Member

09/2004 Lewis Robinson, Doctoral Candidate in Epidemiology
Role: Final Oral Defense Committee Member

03/2003 Ichan Huang, Doctoral Candidate in Health Policy and Management
Role: Thesis Committee Chair

03/2002 Ichan Huang, Doctoral Candidate in Health Policy and Management
Role: Preliminary Orals Committee Member

10/2001 Erika Tang, Doctoral Candidate in Epidemiology
Role: Preliminary Orals Committee Member

Editorial Activities

Peer review activities

Editorial Boards

2010- Present Member, *Clinical Respiratory Journal*
2013-Present Member, *Journal of Pollution Effects & Control*

Peer Reviewer

American Journal of Respiratory and Critical Care Medicine
Archives of Internal Medicine
Archives of Pediatric and Adolescent Medicine
Cancer Epidemiology, Biomarkers & Prevention
Chest
Epidemiology
Expert Opinion on Pharmacotherapy
Health Services Research
Journal of Allergy and Clinical Immunology
Journal of Clinical Outcomes Management
Journal of General Internal Medicine
Journal of Respiratory Diseases
Medical Care
Pediatrics
Preventative Medicine in Managed Care
Quality of Life Research
Thorax

CLINICAL ACTIVITIES:

Certification:

MEDICAL LICENSURE Maryland D-47616

BOARD CERTIFICATION

1991	National Board of Medical Examiners
1993	American Board of Internal Medicine
1996, 2006	American Board of Internal Medicine, Pulmonary Medicine

Service Responsibilities (specialty, role, time commitment):

Intensive Care Medicine, Attending Physician,
Oncology Center, Pulmonary and Critical Care Service, Attending Physician
Pulmonary Inpatient Medicine, Attending Physician
Barker Inpatient Internal Medicine, Attending Physician
Outpatient Pulmonary Clinic, Attending Physician

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

System Innovation and Quality Improvement Publications

Please see original research citation numbers 2, 3, 4, 6, 7, 9, 11, 12, 13, 14, 15, 17, 20, 21, 22, 23, 24, 26, 27, 29, 30, 31, 34, 36, 42, 43, 44, 45, 47, 52, 59, 68, 69, 70, 73, 75, 76, 81, 84, 88, 89, 92, 93, 95 and 99.

System Innovation and Quality Improvement efforts within JHM:

1996-2006	Initiator and Director , Bronchoscopy Quality Improvement Project (BRONCHQI), Johns Hopkins Medical Institutions, Baltimore, MD
-----------	--

This highly successful project had many findings, including:

1. Documentation of unsafe dosing of lidocaine, which led to a reduction in the strength used from 2% to 1%. Documented no loss of analgesia with the change.
2. Identified risk of bleeding complications with lung biopsy
3. Documented diagnostic utility of having on-site cytopathology services during needle biopsy cases
4. Identified factors associated with patient satisfaction
5. Identified excessive pain and reasons for pain during the procedure
6. Performed a clinical trial of distraction therapy to reduce pain during the procedure
7. Identified predictors of positive diagnostic findings in immune-compromised patients
8. Demonstrated benefits of use of atropine pre-procedure to prevent adverse events

1997-2000 **Member**, Committee for Procedure Review, Pulmonary and Critical Care Medicine Procedures, Johns Hopkins Bayview Medical Center, Baltimore, MD

System Innovation and Quality Improvement efforts outside JHM:

1996-1999 Senior Physician Scientist, Quality Assessment and Improvement Systems Division, Covance Health Economics and Outcomes Services. Washington, D.C.

Dialysis Outcomes Quality Initiative (DOQI): Co-investigator, Medical consultant,
NCQA HEDIS hypertension measure: Co-investigator on measure validation

2003 **Member**, Howard County Comprehensive Health Improvement Plan for the Year 2010, Howard County Health Department, Columbia, MD

National Committee for Quality Assurance

2003 Member, COPD Technical Subgroup

2004-Present Member, Clinical Expert Panel

2008 Member, National Committee for Quality Assurance (NCQA) Advisory Panel. HEDIS Trends Publication Expert Advisory Panel.

Production of guidelines and/or protocols:

2002 American Healthways/Johns Hopkins
2nd Annual Disease Management Outcomes Summit: Standard Outcome Metrics and Evaluation Methodology for Disease Management Programs, November 7-10, 2002, Palm Desert, CA.
Role: Physician Steering Committee. The outcome metrics remain intact to date.

System Innovation and Quality Improvement Program Building/Leadership:

N/A

System Innovation and Quality Improvement Extramural Funding

12/26/2003-01/30/2011 Evaluation of home automated tele-management in COPD.
R01 AI070630
NIH
Annual Direct: \$225,000
PI: Finkelstein

09/10/2001-08/31/2006	<p>Role: Co-Investigator, 0.60 calendar months Improving physician adherence to asthma guidelines K23 HL04266 NIH Annual Direct \$146,772</p>
9/01/2002-08/31/2007	<p>Role: Principal Investigator, 9.0 calendar months Provide mentored training and research period for early career development. Improve physician adherence to national asthma guidelines Improving Respiratory Outcomes in ALS K23 HL67887 (Lechtzin) NIH Annual Direct \$121,750 PI: Lechtzin Role: Advisor (effort as needed) The overall theme of this award is to study various aspects of non-invasive positive pressure ventilation in patients with ALS with the goal of improving respiratory management of these patients.</p>
2007-2008 (NCE)	<p>Howard/Hopkins Center for Reducing Asthma Disparities HL072455 NIH/NHLBI Annual Direct \$513,475 PI: Rand Role: Leader, Project 1, 1.5 calendar months, no cost extension This application presents four research projects designed to collaboratively investigate factors associated with the disproportionate burden of asthma experienced by inner-city, African-American children and adults.</p>
09/30/2004-06/30/2008	<p>Improving asthma care for minority children in Head Start R18 HL73833 NIH Annual Direct \$625,506 PI: Rand Role: Co-Investigator, 0.6 calendar months The goal of this project is to study the effect communication intervention on asthma-related morbidity and mortality among low-income African American children.</p>

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

1995-1997	Initiator and Coordinator , Pulmonary and Critical Care Epidemiology Seminar, Johns Hopkins University, Baltimore, MD
1996-present	Initiator and Director , Bronchoscopy Quality Improvement Project (BRONCHQI), Johns Hopkins Medical Institutions, Baltimore, MD
1997-2000	Member , Committee for Procedure Review, Pulmonary and

Critical Care Medicine Procedures, Johns Hopkins Bayview
Medical Center, Baltimore, MD

- 1999-present **Member**, Education Committee, Pulmonary and Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD
- 1999-present **Member**, Research Committee, Pulmonary and Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD
- 1999-2006 **Chair**, Conference Committee, Pulmonary and Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD
- 1999-present **Member**, Internship Selection Committee, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD
- 1999-present **Member**, Fellowship Selection Committee, Division of Pulmonary and Critical Care Medicine, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD
- 2001-present **Member**, Fellow Review Committee, Division of Pulmonary and Critical Care Medicine, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD
- 2003 **Member**, Howard County Comprehensive Health Improvement Plan for the Year 2010, Howard County Health Department, Columbia, MD
- 2003-present **Member**, Faculty Development Committee, Division of Pulmonary and Critical Care Medicine, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD
- 2005 **Member**, Curriculum Reform Committee Meeting, Johns Hopkins School of Medicine, Baltimore, MD
- 2009-present **Member**, Planning Committee, CME Activity – Medical Grand Rounds, Johns Hopkins School of Medicine, Baltimore, MD
- 2011-present **Director**, Obstructive Lung Disease Program, Division of Pulmonary and Critical Care Medicine
- 2013 Member, Panel Presentation/Discussion: “writing a successful career development application. Johns Hopkins Professional Development Office, September 25. 2013.
- 2014 *Ad hoc* Committee for a Department of Biostatistics faculty member’s promotion to Associate Scientist.

Professional Societies

Associate, American College of Physicians (ACP)
Fellow, American College of Chest Physicians (ACCP)
Member, American Thoracic Society (ATS)

Member, American Federation for Clinical Research (AFCR)
Member, Central Society for Clinical Research (CSCR)
Member, International Society of Environmental Epidemiology

Committee Memberships

American Academy of Allergy, Asthma and Immunology

2003-Present Member, Genetics and Epidemiology

American Thoracic Society

1999-2006 Course Faculty Member, Education: Methods in epidemiologic, clinical and operations research (MECOR).
2002-Present Member, Behavioral Science Assembly Long Range Planning Committee
2003-Present Member, Behavioral Science Assembly Program Committee
2003-2004 Chair Elect, Behavioral Science Assembly Program Committee
2003 Member, IRE/MECOR Planning Retreat Committee
2004-2005 Chair, Behavioral Science Assembly Program Committee
2006-2008 Chair, Behavioral Science Assembly
2006-2008 Member, ATS Board of Directors
2008-2009 Chair, Behavioral Science Assembly Nominating Committee
2008-2010 Member, Environmental and Occupational Health Assembly, Clinical Research Committee
2008-2010 Member, Environmental and Occupational Health Assembly Program Committee
2008-2010 Member, Environmental and Occupational Health Assembly Working Group on Epidemiology
2008-2009 Mentor Member, Members in Transition and Training Committee
2009-2011 Member, Grant Review Committee for ATS Foundation-Tobacco-dependence research fund grant.
2010-2015 Member, Drug/Device Discovery and Development Committee
2013-2014 Member, Behavioral Science Assembly Planning Committee
2013-2014 Member, Behavioral Sciences and Health Services Research Assembly Nominating Committee

National Committee for Quality Assurance

2003 Member, COPD Technical Subgroup
2004-Present Member, Clinical Expert Panel

Pennsylvania Department of Health

2004 Member, Grant Review Committee, Centers of Excellence for Research on Lung Disease Review Panel. Washington, DC.
2010-2011 Member, Pennsylvania Final Performance Review, Master Tobacco Settlement for the Pennsylvania Department of Health, 09-10 Cycle B

State of Maryland

2006-2007 Member, Governor-elect Martin O'Malley's Transition Committee, State of Maryland, Department of Health and Mental Hygiene, December, 2006 to January, 2007.

Clinical Trials & Surveys Corp (C-TASC)

2009-present Member, Institutional Review Board

Qatar National Research Fund

2010-present Reviewer, National Priorities Research Program

Netherlands Asthma Foundation

2012-present Member, Grant Review Section

Conference Organizer, Session Chair (see also Classroom Instruction, pages 19-20)

2003 Chair, American Thoracic Society International Conference Session: Assessing Patient Health, Healthcare and Outcomes: Limits of Physician Estimation

Facilitator, American Thoracic Society International Conference Session: Environmental and Genetic Risk Factors for Pediatric Lung Disease.

Chair, American Thoracic Society International Conference Symposium: Impact of Psychosocial Factors on Respiratory Health.

2004 Chair, American Thoracic Society International Conference Symposium: Assessing Asthma Severity and Asthma Control According to National Guidelines: Are our Assessments Working?

Chair, American Thoracic Society International Conference Symposium: Diagnosis and Outcomes in Pediatric Asthma.

Chair, American Thoracic Society International Conference Symposium: Pediatric Asthma.

2005 Chair, American Thoracic Society International Conference Symposium: Health Disparities: Understanding and Addressing Them through Research and Practice.

Chair, American Thoracic Society International Conference Symposium: Implementation of Asthma Severity Measurements in the Real World of Clinical Practice: What Are We Doing Now and What Should Come Next?

2006 Chair, American Thoracic Society International Conference Symposium: The Complex Interaction of Race, Stress and Neighborhood on Respiratory Disease. May 21, 2006.

2007 Chair, American Thoracic Society International Conference Symposium: Current Methods for the Respiratory and Environmental Researcher: A Toolkit for Clinical Investigation

Chair, American Thoracic Society International Conference Symposium: Scientific Writing: How to Publish for Academic Success.

Chair, American Thoracic Society International Conference: Assembly on Behavioral Science Membership Meeting.

2008 Chair, American Thoracic Society International Conference Symposium: Introduction to Data Analysis: Exploring the Great Unknown.

Chair, American Thoracic Society International Conference Symposium: Asthma Severity Versus Asthma Control: What Should We Use in Clinical Practice?

- 2009 Chair, American Thoracic Society International Conference Symposium: Measuring and Improving the Quality of Care in Lung Disease.
- Facilitator, American Thoracic Society International Conference Symposium: Developing Surveys that Measure or Predict.
- Facilitator, American Thoracic Society International Conference Symposium: Asthma in the Inner City: A Unique Mix of Allergen and Pollutant Exposures.
- 2010 Chair, American Thoracic Society International Conference, Poster Session Discussion, New Orleans
- Chair, American Thoracic Society International Conference, Scientific Symposium: Individual susceptibility to air pollution.
- Chair, American Thoracic Society International Conference, Scientific Symposium: Asthma disparities: Root causes and global solution
- 2013 Chair, American Thoracic Society International Conference, EOH Program Committee
- 2013 Chair/Moderator, American Thoracic Society International Conference, Poster Session Discussion, Pollution Effects, Philadelphia
- 2013 Discussant, American Thoracic Society International Conference, Poster Session Discussion, Obesity: Impact on lung function and disease, Philadelphia
- 2013 Chair, Scientific Symposium: Developmental origins of asthma and allergies: Environment, modifiers and mediators, American Thoracic Society International Meeting, Philadelphia, May 2013.
- 2015 Chair, Scientific Symposium: Advances in Understanding and Reducing Asthma Disparities, American Thoracic Society International Meeting, San Diego, May 2015.

Advisory Committees, Review Groups

- 2001-2006 American Lung Association
Member, National Grants Review Award Selection Committee
- 2002 American Healthways/Johns Hopkins 2nd Annual Disease Management Outcomes Summit: Standard Outcome Metrics and Evaluation Methodology for Disease Management Programs, November 7-10, 2002, Palm Desert, CA, Role: Physician Steering Committee
- 2003 American Healthways/Johns Hopkins 3rd Annual Disease Management Outcomes Summit: Defining the Patient-Physician Relationship for the 21st Century, October, 2003, Phoenix, AZ. Role: Physician Steering Committee
- Member, Aventis AVE0547 HE Asthma Advisory Board

- 2004 American Healthways/Johns Hopkins 4th Annual Disease Management Outcomes Summit: Outcomes-Based Compensation: Pay-for-Performance Design Principles, November 11-14, 2004, Rancho Mirage, CA, Role: Physician Steering Committee
- Member, DEY, LP, Managed Care Advisory Board, Napa, CA.
- 2005 American Healthways/Johns Hopkins 5th Annual Disease Management Outcomes Summit: Improving Care Coordination through Physician-Disease Management Collaboration, November 10-13, 2005, Fort Lauderdale, Florida, Role: Physician Steering Committee
- Invited Faculty representing ATS, National Workshop to Reduce Asthma Disparities, Chicago, Illinois
- 2006 American Healthways/Johns Hopkins 6th Annual Disease Management Outcomes Summit: Embracing Health: Tools and Systems for Health Promotion and Disease Prevention, November, 2006, JW Marriott Starr Pass Resort, Tucson, AZ , Role: Physician Steering Committee
- Member, NIH/NHLBI Grant Review Award Selection Committee
- Member, NHLBI Strategic Planning Process Committee
- 2007 American Healthways/Johns Hopkins 7th Annual Disease Management Outcomes Summit: Integrated Medicine: Complementary Approaches, November 8-11, 2007, Austin, Texas, Role: Physician Steering Committee
- 2008 Reviewer, *ad hoc*, Deutsche Forschungsgemeinschaft (German Research Foundation).
- Member, Cancer, Cardiovascular and Pulmonary Disease (CCPD) program. The Amendment 25 Program Evaluation Group.
- Member, National Committee for Quality Assurance (NCQA) Advisory Panel. HEDIS Trends Publication Expert Advisory Panel.
- 2008- Member, EXPORT's P60 Advisory Board, University of Puerto Rico (UPR)/CHA Research presentCenter of Excellence: Making a Difference for Latino Health. San Juan, Puerto Rico.
- 2008-2009 Chair, The Donaghue Program for Research Leadership, Hartford, CT.
- 2009-2011 Member, NIH/NHLBI Study Section for Patient Oriented Research (K23, 24, and 25).
- 2009 Member, NIH/NIAID Review Panel for Special Emphasis Study Section ZAI1-RRS-I-M1.
- 2010 Discussant, NIH/NIAID, Asthma, Allergy and Inflammation Branch: Asthma Outcomes Workshop, Bethesda, MD.
- 2011 Member, NIH/NHLBI Review Panel for Small Business Respiratory Sciences, Special Emphasis Study Section, ZRG1 CVRS-H (10) B (K12)

- 2011 Member, NIH/NHLBI Review Panel for NHLBI Career Development Programs in Emergency Medicine Research (K12).
- 2011 Chair, NIH/NHLBI Review Panel for RFA-HL-12-011, Development and testing of a case finding methodology in COPD (R01), Washington, DC
- 2012 Discussant, Webinar Presentation, NIEHS, Virtual Forum: Childhood Obesity and the Environment, November 2012. Research Triangle Park, NC

Consultancies

Aventis 2002; Physician Advisory Panel

Cardiocontinuum, 1999-2000; Role: Development of COPD Program

American Healthways, 2002-Present; Role: Steering Committee Member and Performance Measure Development

Sorption Technologies, Inc., 2004-Present; Role: Research Design Consultant

Interactive Forums, Inc., 2004-Present; Role: Health Care Consulting

Merck, Beta-agonist Measure Panel Meeting, December 3, 2004, Denver, Colorado.

Pfizer Academic Round Table, May 24-25, 2005, American Thoracic Society, San Diego, California.

RECOGNITION

Awards, honors

1986 English Degree awarded with Honors, University of Pennsylvania

1986 BA, *Magna cum Laude*, University of Pennsylvania

1986 BS, *Magna cum Laude*, University of Pennsylvania

1997 Delta Omega Public Health Honor Society

2000 Solo Cup Clinician Scientist Award

2001 GlaxoSmithKline Development Partners' Junior Faculty Award

2009 Qforma's List of Most Influential Doctors, created for USA Today.

2010 Pfizer Visiting Professorship in Pulmonology.
East Tennessee State University College of Public Health.

Invited Talks, Panels

- 1993 The Special Value of Undergraduate Research. Presented at the 64th Annual Meeting of the Eastern Psychological Association. Arlington, Virginia.
- PSA as a Screening Test? Medical Management Conference. Department of Internal Medicine, University of Pennsylvania.
- 1994 Carbon Monoxide Poisoning, Medical Management Conference, Department of Internal Medicine, University of Pennsylvania.
- Invited Discussant, Morbidity and Mortality Conference, Department of Internal Medicine, University of Pennsylvania.
- 1996 Vitamins and the Risk of Lung Cancer: Randomized Clinical Trials as a Gold-Standard, Longcope Attending Rounds, Department of Internal Medicine, The Johns Hopkins University School of Medicine.
- PSA and DRE Screening for Prostate Cancer: Principles of Screening, Longcope Attending Rounds, Department of Internal Medicine, Johns Hopkins University School of Medicine.
- 1997 Predictors of overuse of inhaled β -agonists, underuse of inhaled corticosteroids, and of nocturnal symptoms in adult asthmatics. Outcomes research group, Merck & Co., Inc., West Point, PA.
- Associations of misuse of asthma medications in adult asthmatics enrolled in managed care. Managed Care Health Care Consortium, Washington, DC.
- Misuse of corticosteroid and β -agonist metered dose inhalers (MDIs) among adult asthmatics in managed care (MCOs), Maryland Thoracic Society Annual Research Dinner, Baltimore, MD.
- 1998 Treatment patterns among adult asthmatics: Overuse of inhaled beta-agonists, underuse of inhaled corticosteroids, Division of Pulmonary and Critical Care Medicine, Yale University School of Medicine, New Haven, CT.
- Treatment patterns among adult asthmatics: Overuse of inhaled beta-agonists, underuse of inhaled corticosteroids, Division of General Internal Medicine, Case Western University School of Medicine, Cleveland, OH.
- Misuse of corticosteroid and β -agonist metered dose inhalers (MDIs) among adult asthmatics in managed care (MCOs), Combined Allergy and Immunology Meeting, Palm Beach, FL.
- Future HEDIS Measures for Asthma. Glaxo-Wellcome Asthma Managed Care Consultants Program. Naples, FL.
- Asthma Therapy Assessment Questionnaire: Results of a Validation Study, Blue Plus, Minneapolis, MN.
- 1999 Bronchoscopy Quality Improvement Project: A Hospital Based Cohort Study. Health Services Research and Development Research Seminar.

Lesson Learned from Studies of Asthma in Managed Care. Best Practices Symposium sponsored by the Pacific Business Group on Health, Oakland, California.

Quality of Care and Guidelines: Management of Asthma. Practice Guidelines Workshop. Johns Hopkins Medical Services Corporation, Baltimore, MD, November 1999 and May 2000.

- 2000 Asthma Care by Asthma Specialists. Department of Medicine Grand Rounds. Greater Baltimore Medical Center, Baltimore, MD.

Predictors of Outcomes in Asthma. Frontiers in Research and Clinical Management of Asthma and Allergy Conference. Johns Hopkins Asthma & Allergy Center, Baltimore, MD.

Update in Asthma. Update in Pulmonary and Critical Care Medicine, Johns Hopkins University, Santa Fe, NM.

Fine-tuning your Bronchoscopy Practice. Bronchoscopy Workshop. Johns Hopkins University, Santa Fe, NM.

Underuse of Inhaled Corticosteroids in Asthma. Department of Medicine Grand Rounds, Johns Hopkins University, Baltimore, MD.

Nocturnal Asthma: Impact on Children and Their Parents. Research Conference of the Center for Childhood Asthma in the Urban Environment, Johns Hopkins University, Baltimore, MD.

Bronchoscopy Quality Improvement Project: Design Issues and Results. Robert Wood Johnson Clinical Scholars Program, Johns Hopkins University, February 1998 and April 2000.

- 2001 COPD- The Role of Steroids. Maryland Thoracic Society 41st Annual Meeting and Scientific Session, Pulmonary and Critical Care Medicine: State-of-the-Art, Baltimore, MD.

Update in Asthma. Johns Hopkins Bayview Medical Center, Department of Medicine, Baltimore, MD.

Severity, Control and Nocturnal Symptoms of Asthma in Children. Research Conference, Division of Pediatric Pulmonary Medicine, Johns Hopkins University. Baltimore, MD.

- 2002 Non-pharmacologic pain control with Bedscapes for Bronchoscopy. American Red Cross, Arlington, VA.

- 2003 Annual High Sierra Critical Care Conference; Update in Asthma Management for 2003.

Annual High Sierra Critical Care Conference; How to get the most from your bronchoscopy practice.

Office of Community Health, Community Chats 2002-2003.

Burnt Pizza and Near-Death from Asthma. Department of Internal Medicine Grand Rounds, Johns Hopkins Bayview Medical Center, Baltimore, Maryland.

Using Functional Genomics to Understand Complex Lung Disease, ATS/NHLBI.

Aligning Asthma Care with Assessment of Severity, Healthcare Quality and Safety Research Seminar Series, JHU.

Asthma Epidemiology, World Allergy Organization (WAO), Vancouver.

Aligning Asthma Care with Assessment of Severity. Pulmonary and Critical Care Grand Rounds, Oregon Health Services University.

- 2004 Office of Community Health, Community Chats 2003-2004; Impact of Night Time Asthma on Children and their Families Effective Asthma Medication.

The Role of the Indoor Home Environment in Childhood Asthma. Johns Hopkins-Barbados Genetic Epidemiology of Obstructive Lung Disease Research Conference, Almond Bay, Hastings, Christ Church, Barbados.

Environmental Factors Impacting Respiratory and Immunologic Disease. Gulf Coast Pediatric Environmental Health Symposium, Baylor College of Medicine, Houston, Texas.

Aligning Asthma Care with Estimates of Asthma Severity: Development of the Asthma Communication Instrument. Research Conference, Division of Pulmonary and Critical Care Medicine, Department of Pediatrics, Johns Hopkins University, Baltimore, Maryland.

Epidemiology as a Tool for Understanding Respiratory Disease: Case-Control Studies, American Thoracic Society, Orlando, Florida.

Standardizing the Care of the Patient with COPD: Is the Quality of Care Truly Improved? American Thoracic Society, Orlando, Florida.

Getting the Most Out of Bronchoscopy Services, 6th Annual Update, Pulmonary and Critical Care Medicine, Santa Rosa, California.

Severe Asthma: Current and Future Management, 6th Annual Update, Pulmonary and Critical Care Medicine, Santa Rosa, California.

- 2005 Office of Community Health, Community Chats 2005-2006. The Growing Child and Other Health Issues: Impact of Night-Time Asthma on Children and Their Families

Office of Community Health, Community Chats 2005-2006; Lung Disease: Making the Home Safer for Asthmatics.

Health Care Communications and Cultural Competency, National Workshop to Reduce Asthma Disparities, Chicago, Illinois.

The Home Environment of East Baltimore Preschool Children With and Without Asthma, Department of Physiology, Bloomberg School of Public Health, Johns Hopkins University.

COPD: A Pragmatic Approach to Improving Outcomes. Baltimore, Maryland.

COPD: A Pragmatic Approach to Improving Outcomes. COPD Exchange, Pittsburgh, Pennsylvania.

COPD: Evolving Concepts of Therapy. COPD Exchange, Baltimore, Maryland.

Aligning Asthma Care with Assessment of Severity and Control in Practice. Department of Internal Medicine, York Hospital, York, Pennsylvania.

Office of Community Health, Community Chats 2005-2006; Treating Asthma in Children, New Psalmist Christian School, Baltimore, Maryland.

The Role of the Indoor Home Environment in Childhood Asthma. Johns Hopkins-Barbados Asthma Conference, Almond Bay, Hastings, Christ Church, Barbados.

Is it Smart to Prescribe Long-Acting β -Agonists for Patients with Asthma? Division of Allergy and Clinical Immunology, Johns Hopkins University. December 2, 2005; and Rush University, Chicago, Illinois.

Aligning Asthma Care with Assessment of Severity and Control in Practice. Primary Care Conference, Baltimore, Maryland, February 24, 2006; Ohio State Pulmonary Grand Rounds, April 7, 2006; and Hospital of the University of Pennsylvania. January 25, 2008.

2006 Aligning Asthma Care with Assessment of Severity and Control in Practice. American Lung Association, Chicago, Illinois.

Should We Still use Long-acting Beta-Agonists in Patients with Asthma? Johns Hopkins University, School of Medicine, Department of Medicine Grand Rounds.

Development of the Asthma and Control Communication Instrument. University of Maryland, Pulmonary Research Conference, Baltimore, MD.

Update in COPD. Baltimore-Washington Hospital, Department of Medicine Grand Rounds. Glen Burnie, Maryland.

Issues Related to Beta-2 Agonist Therapy; Polymorphisms/Clinical Outcomes/Adverse Events Profile. 20th Annual Update. Frontiers in Research and Clinical Management of Asthma and Allergy: From Bench to Bedside. Johns Hopkins University School of Medicine, Division of Allergy and Clinical Immunology, Johns Hopkins Asthma & Allergy Center at Johns Hopkins Bayview Medical Center, Baltimore, Maryland.

2007 Office of Community Health, Community Chats 2007-2008; Asthma: How Asthmatics Can Make Their Home Safer; Effective Asthma Medication.

Hyperinflation in COPD Linking Physiology to Patient Experience. Boehringer-Ingelheim Pharmaceuticals, Inc, Christiana Care Hospital, Newark, Delaware.

Environmental Issues in Managing Asthma. 41st Respiratory Care Journal Conference. Scottsdale, Arizona, September 28, 2007.

Translational Science Think Tank. Collaborative Research Bridging Basic, Clinical and Health Services Domains: Challenges and Opportunities.” University of Connecticut Health Center, Farmington, CT, December 6, 2007.

- 2008 NCQA On-line Program: Best Practices in COPD Treatment. Course Faculty. December 2007-December 2008.

Approaching and Garnering the Support of Community Partners for Community-Based Research. American Thoracic Society International Meeting.

Logistic Regression. American Thoracic Society International Meeting Post-graduate Course.

Assessing Control is Good, But Not Sufficient for Management of Asthma. American Thoracic Society International Meeting Scientific Symposium.

The Death of Primary Care. Barker Grand Rounds, Johns Hopkins University, Baltimore, Maryland.

Is Genetic Polymorphism important in response to asthma therapy? Johns Hopkins 21st Update Frontiers in Research and Clinical Management of Asthma and Allergy. Johns Hopkins Asthma and Allergy Center, Baltimore, Maryland.

Joint Indo-US Workshop on Environmental Risks of Respiratory Disease. Prevalence of Respiratory Disease in India. Chandigarh, India.

Bridging the Evidence-to-Practice Gap in Asthma and Chronic Obstructive Pulmonary Disease from a National and International Perspective: An Update. American Thoracic Society International Meeting, San Diego, CA.

- 2009 Diet and inner city asthma: Is there a connection? Department of Medicine Grand Rounds, Johns Hopkins University, Baltimore, MD.

Role of indoor pollutants in respiratory disease. Fellows Orientation Conference, Division of Allergy and Clinical Immunology, Johns Hopkins University, Baltimore, MD.

Susceptibility determinants of childhood asthma. Session: Contributing factors that influence the relationship between environmental exposures and children’s health. Pediatric Academic Societies Annual Meeting, Baltimore, MD.

Scientific Advisory Committee, Merck Childhood Asthma Network, Washington, DC.

Pediatric Asthma Roundtable meeting-Improve lives of children with asthma in the Baltimore area. National Asthma Campaign, Baltimore, MD.

- 2010 Topics in Clinical Medicine 2010. Session: Meet the Professor—Pulmonary. Johns Hopkins University Annual Topics in Clinical Medicine, Baltimore, MD.

Validated questionnaires in the management of allergic disorders: Applications and interpretation. Johns Hopkins Community Physicians, Baltimore, MD.

Validated questionnaires in the management of allergic disorders: Effective Use in an Allergy Practice Setting. Session: State-of-the-Art Session 2525: American Academy of Allergy, Asthma and Immunology International Meeting, New Orleans, LA.

Indoor environmental exposures and asthma disparities. Scientific Symposium: Asthma disparities: Root cause and global solution. American Thoracic Society International Meeting, New Orleans, LA.

- 2010 Speaker: Environmental Issues in Managing Asthma. Post-Graduate Respiratory Medicine Meeting, Irish Lung Foundation, Dublin, Ireland. June 2010.

Speaker, Asthma Update Seminar. Eastern Shore AHEC, Hyatt Regency Chesapeake Bay, Cambridge, Maryland. August 2010.

Academy of Industrial Hygiene, PCIH 2010. Fort Worth, Texas, October 7-8, 2010
21st Century Toxicity Testing and Human Health Risk Assessment for Environmental Agents.

Speaker: (1) "Lung responses to environmental toxins"

Speaker: (2) "Environmental residential exposures to allergens and irritant gases"

Speaker: (3) "Role of Pulmonary and Respiratory Irritants in Asthma, COPD, and Bronchiolitis Obliterans"

Speaker: "Is diet driving the asthma epidemic?" NIEHS/EPA Conference, Protecting children's health for a lifetime: Environmental health research meets clinical practice and public policy conference, October 19-20, Washington, DC

Speaker: Environmental Health Department Doctoral Seminar, Boston University, October 22, 2010. "The role of indoor pollutants and allergens and asthma in inner city children: Some of the bad ingredients in a toxic stew."

Participant, Workshop: Task Force for the Asthma Disparities Working Group/Federal Task Force on Environmental Health Risks and Safety Risks to Children Steering Committee, "Developing a coordinated federal action plan to reduce asthma disparities." NIH-NHLBI/EPA/HUD. Washington, DC. December 16-17, 2010.

- 2011 Visiting Professor, Leading Voices in Public Health Lecture Series. "The mouse, the house and the hamburger: Making sense of the asthma epidemic." The College of Public Health and the Public Health Student Association, East Tennessee State University, March 3, 2011.

Lecturer, Teaching Course entitled Health Care Organization and Delivery: "Indoor environmental exposures and asthma disparities." East Tennessee State University, March 3, 2011.

Lecturer, Teaching Course entitled Introduction to Air Pollution: "Asthma and Air Pollution." East Tennessee State University, March 4, 2011.

Invited Speaker: U.S. Congress Briefing, Preventing Breast Cancer and Pediatric Asthma: Links to the Environments of Women and Children, Rayburn House Office Building B-354 NIH/NIEHS. "The Mouse, the House and the Hamburger: Making Sense of the Asthma Epidemic." April 21, 2011.

Invited Speaker-Panelist: Clearing the Air, Addressing asthma disparities in Maryland.
Session A-3: “Asthma Interventions: Research into Practice,” and
Session B-4: “The human side of asthma: Educating patients to make health decisions—overcoming barriers to medication adherence.” Linthicum, MD. June 2011.

Invited Speaker: National Healthy Homes Conference. Track 7: Just the Facts. Session 7H-2.
“Nanoparticles and nitrogen dioxide from stoves: Health effects and strategies to reduce exposure and improve asthma control.” Denver, CO. June 2011.

- 2012 Visiting Professor, Division of Pulmonary Medicine, Allergy and Immunology Children's Hospital of Pittsburgh of UPMC, Pittsburgh, PA, January 5, 2012.

Invited Speaker, Pediatric Pharmacology Division, National Jewish Health. “The house, the mouse and the hamburger: Making sense of the asthma epidemic.” Denver, CO, June 2012.

Invited Speaker, Johns Hopkins Bloomberg School of Public Health/The Maryland Department of Health and Mental Hygiene/The mid-Atlantic Public Health Training Center. “Reducing asthma disparities in children: A model program with promising results. Baltimore, MD, June 2012.

Invited Speaker, EPA/NIEHS Children’s Centers 2012 Webinar Series, Protecting children’s health for a lifetime. “Role of home environment and diet on childhood asthma.” December 2012.

- 2013 Visiting Professor, “The house, the mouse and pizza: Explaining the asthma epidemic.” Universidad de Los Andes, Bogota, Columbia, April 2013.

Invited Speaker, Scientific Symposium: Developmental origins of asthma and allergies: Environment, modifiers and mediators, “Indoor exposures and ETS.” American Thoracic Society International Meeting, Philadelphia, PA. May 2013.

Invited Speaker, Congressional Briefing, Health and Medicine Counsel of Washington. “Protecting children’s health for a lifetime: How the environment influences health and development,” hosted by Senator Kirsten E. Gillibrand, 385 Russell Senate Office Building. Sponsored by Friends of NIEHS, the American Academy of Pediatrics, and the Children’s Environmental Health Network. October 2013.

Invited Lecturer, Johns Hopkins University School of Nursing, “Diagnosis, Symptom, and Illness Management I – Adult Course.” Topic: Asthma. December 2013.

- 2014 Invited Lecturer and participant, NIH – MOST Clinical and Translational Science Workshop, NIH Campus, Stone House, Bethesda, MD, July 21-22, 2014.

Invited Speaker, Respiratory Expert Forum Ireland, “Beat the Professor” Case Studies on treating difficult airways disease, Dublin, Ireland, October 17-18, 2014.

- 2015 Invited Speaker, The Children’s Environmental Health Network’s 2015 CEHN Pediatric Research Conference Children: Food and Environment, “Prevention and Treatment of Asthma with Diet: Progress and Promise.” The University of Texas at Austin, Austin, TX. February 4-6, 2015.

Invited Speaker, Scientific Symposium: Advances in Understanding and Reducing Asthma Disparities, “Indoor Exposures and Asthma Disparities.” American Thoracic Society International Meeting, San Diego, CA. May 2015.

Office of Community Health, Community Chats 2015-2016; Asthma: “How People With Asthma Can Make Their Homes Safer.”

Office of Community Health, Community Chats 2015-2016; Asthma: “Does Diet Affect Asthma?”

APPENDIX D

Gregory Diette, MD, MHS

Diette publications, continued, after June 2017

1. Brigham EP, Steffen LM, London SJ, Boyce D, **Diette GB**, Hansel NN, Rice J, McCormack MC. Diet Pattern and Respiratory Morbidity in the Atherosclerosis Risk in Communities Study. *Annals of the American Thoracic Society*. 2018; 15(6).
2. Brigham EP, Matsui EC, Appel LJ, Bull DA, Curtin-Brosnan J, Zhai S, White K, Charleston JB, Hansel NN, **Diette GB**, McCormack MC. A pilot feeding study for adults with asthma: The healthy eating better breathing trial. *PLOS ONE*. 2017; 12(7).
3. Cloutier MM, Salo PM, Akinbami LJ, Cohn RD, Wilkerson JC, **Diette GB**, Williams S, Elward KS, Mazurek JM, Spinner JR, Mitchell TA, Zeldin DC. Clinician Agreement, Self-Efficacy, and Adherence with the Guidelines for the Diagnosis and Management of Asthma. *The Journal of Allergy and Clinical Immunology: In Practice*. 2018; 6(3): 886-894.
4. Lin SY, Azar A, Suarez -Cuervo C, **Diette GB**, Brigham E, Rice J, Ramanathan M, Gayleard J, Robinson KA. The Role of Immunotherapy in the Treatment of Asthma. *AHRQ Comparative Effectiveness Reviews*, No. 196. 2018.
5. Lin SY, Azar A, Suarez-Cuervo C, **Diette GB**, Brigham E, Rice J, Ramanathan Jr. M, Robinson KA. Role of sublingual immunotherapy in the treatment of asthma: An updated systematic review. *International Forum of Allergy and Rhinology*. 2018; 8(9): 982-992.
6. McCormack MC, Paulin LM, Gummerson CE, Peng RD, **Diette GB**, Hansel NN. Colder temperature is associated with increased COPD morbidity. *European Respiratory Journal*. 2017; 49(6).
7. Nnodum BN, McCormack MC, Putcha N, Hwang S, Paulin LM, Brigham EP, Fawzy A, Romero K, **Diette GB**, Hansel NN. Impact of Physical Activity on Reporting of Childhood Asthma Symptoms. *Lung*. 2017; 195(6): 693-698.
8. Paulin LM, Williams DL, Peng R, **Diette GB**, McCormack MC, Breysse P, Hansel NN. 24-h Nitrogen dioxide concentration is associated with cooking behaviors and an increase in rescue medication use in children with asthma. *Environmental Research*. 2017; 159: 118-213.
9. Rice JL, **Diette GB**, Suarez-Cuervo C, Brigham EP, Lin SY, Ramanathan Jr. M, Robinson KA, Azar A. Allergen-Specific Immunotherapy in the Treatment of Pediatric Asthma: A Systematic Review. *Pediatrics*. 2018; 141(5).
10. Rice JL, Brigham E, Dineen R, Muqueeth S, O'Keefe G, Regenold S, Koehler K, Rule A, McCormack M, Hansel NN, **Diette GB**. The feasibility of an air purifier and secondhand smoke education intervention in homes of inner city pregnant women and infants living with a smoker. *Environmental Research*. 2018; 160: 524-530.
11. Sulaiman I, Greene G, MacHale E, Seheult J, Mokoka M, D'Arcy S, Taylor T, Murphy DM, Hunt E, Lane SJ, **Diette GB**, FitzGerald JM, Boland F, Bhreathnach AS, Cushen B, Reilly RB, Doyle F, Costello RW. A randomized clinical trial of feedback on inhaler adherence and technique in patients with severe uncontrolled asthma. *European Respiratory Journal*. 2018; 51(1).

Gregory Diette, MD, MHS

Diette publications, continued, after June 2017

12. Wu TD, Eakin MN, Rand CS, Brigham EP, **Diette GB**, Hansel NN, McCormack MC. In-Home Secondhand Smoke Exposure Among Urban Children With Asthma: Contrasting Households With and Without Residential Smokers. *Journal of Public Health Management and Practice*. 2018; 25(2): E7-E16.
13. Wu TD, Brigham EP, Peng R, Koehler K, Rand C, Matsui EC, **Diette GB**, Hansel NN, McCormack MC. Overweight/obesity enhances associations between secondhand smoke exposure and asthma morbidity in children. *The Journal of Allergy and Clinical Immunology: In Practice*. 2018; 6(6): 2157-2159.
14. POSTER DISCUSSION SESSION:

Nnodum BN, Hwang S, Romero K, Kineza C, Tariq Z, Peng R, Putcha N, McCormack MC, Diette GB, Hansel NN. Impact Of Physical Activity On Childhood Asthma Symptoms: Longitudinal Study In Inner City Baltimore, Maryland. *Poster Discussion Session/ Wednesday May 24 2017/ Walter E. Washington Convention Center*
15. POSTER DISCUSSION SESSION:

Wu TD, Eakin M, Rand CS, Brigham E, Diette GB, Hansel NN, McCormack MC. Factors Associated with In-Home Secondhand Smoke Exposure from External Sources in Urban Children with Asthma. *Poster Discussion Session/ Sunday May 20/ San Diego Convention Center*
16. POSTER DISCUSSION SESSION:

Wu TD, Brigham E, Rand CS, **Diette GB**, Peng R, Putcha N, Koehler K, Hansel NN, McCormack MC. Overweight and Obesity Increases Respiratory Symptoms Associated With Secondhand Smoke Exposure Among Us Children. *Poster Discussion Session/ Wednesday May 24/ Walter E. Washington Convention Center*
17. POSTER DISCUSSION SESSION:

Koch A, Woo H, Brown RH, Brooker A, Paulin LM, Schneider H, Schwartz AR, Diette GB, Wise RA, Hansel NN, Putcha N. Obstructive Sleep Apnea is Associated with Airway Dimensions in COPD. *Poster Discussion Session/ Tuesday May 22, 2018/ Marriott Marquis San Diego Marina*
18. POSTER DISCUSSION SESSION:

Liesching TN, Huynh T, Cereda M, **Diette GB**. Treatment with the MetaNeb® System in High-Risk Post-Surgical Patients Reduced Hospital and Intensive Care Unit Length of Stay. *Poster Discussion Session/Sunday May 20/San Diego Convention Center*
19. POSTER DISCUSSION SESSION:

Polito C, Eakin M, Woo H, Romero K, McCormack MC, Fawzy A, Paulin LM, **Diette GB**, Koehler K, Hansel NN, Putcha N. Indoor Air Pollution May Be Associated with cognitive Impairment in Chronic Obstructive Pulmonary Disease. *Thematic Discussion Session/Monday May 21/San Diego Convention Center*
20. POSTER DISCUSSION SESSION:

Gregory Diette, MD, MHS

Diette publications, continued, after June 2017

Putchu N, Fawzy A, Matsui E, Bowler RP, Woodruff P, O'Neal WK, Comellas AP, Han MK, Dransfield MT, Lugogo N, Hoffman EA, Cooper CB, Hersh CP, Paulin LM, Drummond M, Wise RA, **Diette GB**, Hansel NN. Allergen Sensitization and Exposure Is Associated with Exacerbations in COPD. *Poster Discussion Session/Monday May 21/San Diego Convention Center*

21. POSTER DISCUSSION SESSION

Rice J, Brigham EP, Koehler K, McCormack MC, **Diette GB**, Woo H, Hanson C, Sharma S, Kolahdooz F, Hansel NN. Adherence to a Mediterranean Diet Attenuates the Adverse Effect of Indoor Particulate Matter on Asthma Symptoms in Children. *Poster Discussion Session/ Tuesday May 22/ San Diego Convention Center*

22. THEMATIC POSTER SESSION:

Wu TD, Rice J, Koehl R, Brigham E, **Diette GB**, Hansel NN, Sterni LM, McCormack MC. Pediatric Sleep Disordered Breathing is Associated with Worse Acute Asthma Control. *Thematic Poster Session/ Sunday May 20, 2018/ San Diego Convention Center*

23. THEMATIC POSTER SESSION:

Cereda M, Huynh T, Liesching T, **Diette GB**. Identification Of Surgical Population At High Risk Of Postoperative Pulmonary Complications. *Thematic Poster Session/ Sunday May 21, 2017/ Walter E, Washington Convention Center*

24. THEMATIC POSTER SESSION:

Soto, CML, Woo H, Romero K, Brigham E, McCormack MC, **Diette GB**, Hanson C, Fawzy A, Koch A, Putcha N, Hansel NN. Association of Omega-3 and Omega-6 Fatty Acid Intake with Inflammation and Respiratory Outcomes in COPD. *Thematic Poster Session/ Monday May 21, 2018/ San Diego Convention Center*

25. MINI SYMPOSIUM:

Bose S, McCormack MC, Woo HS, Romero K, Brigham E, Koehler K, Detrick B, **Diette GB**, Hansel NN. Vitamin D Status Modifies Response to Indoor Air Pollution in Urban Children with Asthma. *Mini Symposium/ Sunday May 20/ San Diego Convention Center*

26. MINI SYMPOSIUM:

Brigham E, McCormack MC, Woo H, Rice J, Koehler K, Vulcain T, Wu TD, Biswal SS, Sudini K, Koch A, Hanson C, Sangita S, Kolahdooz F, Bose S, Romero K, **Diette GB**, Hansel NN. Omega-3 and Omega-6 Fatty Acid Intake Modifies Response to Indoor Air Pollution in Children with Asthma. *Mini Symposium/ Sunday May 20/ San Diego Convention Center.*

27. Listed as a Reviewer and Technical Contributor:

World Health Organization. Air Pollution and Child Health: Prescribing Clean Air Summary. 2018.

APPENDIX E

Expert Testimony of Gregory B. Diette, MD, MHS

Date	Case Name	Case Number	Deposition or Trial
16-Jan-2014	Ismael Rosas v. Flavorchem Corporation, et al	Superior Court of the State of California Count of Los Angeles, Central Civil West Case No.: BC400974	Deposition (O'Laughlin Industries)
1-Aug-2014	Tanu Vatuvei v. Mission Flavors & Fragrances, Inc., et al.	Superior Court of the State of California for the county of Orange, Central Justice Center Case No.: 30-2011-00518123	Deposition (O'Laughlin Industries)
10-Jun-2014	Harry Goldsmith v. ACandS, Inc., et al. (Law Offices of Peter G. Angelos: Mr. William Minkin, Esq.)	In the Circuit Court for Baltimore City Case No.: 24x13000097	Deposition (Hampshire Industries)
3-Oct-2014	Charles Waters v. ACandS, Inc., et al. (Law Offices of Peter G. Angelos: Mr. Gary Ignatowski, Esq.)	In the Circuit Court for Baltimore City Case No.: 24x13000461	Deposition (Hampshire Industries)
31-Oct-2014	Francis Murphy v. ACandS, Inc., et al. (Law Offices of Peter G. Angelos: Mr. William Minkin, Esq.)	In the Circuit Court for Baltimore City Case No.: 24x13000371	Deposition (Hampshire Industries)
19-Feb-2015	Rachele and David Ventres v. 002 Auto Parts Inc., et al. (Levy Konigsberg: Joseph Mandia, Esq.)	Superior Court of New Jersey Case No.: MID-L-1933-12AS	Deposition (BASF)
19-Feb-2015	Thomas and Donna Gioglio v. 3M Company, et al. (Levy Konigsberg: Joseph Mandia, Esq.)	Superior Court of New Jersey Case No.: MID-L-4593-12AS	Deposition (BASF)
25-Feb-2015	Lorene McKenzie, deceased v. Palestine Principal Healthcare Limited Partnership, et al.	District Court of Anderson County Texas, 369th Judicial District. Case No.: 369-12-4684	Trial (Plaintiff)
13-Mar-2015	Walter Henry Hakenjos v. AT&T Corporation, et al. (Cannella Law Firm: David Cannella, Esq.)	Civil District Court for the Parish of Orleans State of Louisiana Case No.: 14-3828	Deposition (AT&T)
10-Apr-2015	Robert Menoche (as part of Raymond Michaels, et al.) v. ACandS, Inc., et al. (Law Offices of Peter G. Angelos: Mr. Theodore Fierlage, Jr., Esq.)	In the Circuit Court for Baltimore City Case No.: 24x14000259	Deposition (Hampshire Industries)

Expert Testimony of Gregory B. Diette, MD, MHS

Date	Case Name	Case Number	Deposition or Trial
22-May-2015	Kathy Mason v. Vistas at Lake Largo, LLC (Eccleston and Wolf: Mark Johnson, Esq.)		Deposition (de bene esse) (Vistas at Lake Largo)
3-Jun-2015	Senate Committee on Environment & Public Works	Challenges and Implications of EPA's Proposed National Ambient Air Quality Standard for Ground-Level Ozone and Legislative Hearing on S. 638, S. 751, and S. 640.	(Minority)
12-Jun-2015	Donald Russ and Ann Russ v. Alcatel-Lucent USA Inc, et al. (Simmons Hanley Conroy: Daniel Blouin, Esq.)	In the Superior Court of New Jersey Case No.: MID-L-1249-14-AS	Deposition (AT&T)
16-Jun-2015	House Committee on Energy & Commerce	EPA's Proposed Ozone Rule: Potential Impacts on Manufacturing.	(Minority)
31-Jul-2015	Eric Heggie, as Special Administrator of the Estate of Karry Heggie, Deceased v. Honeywell International, Inc., Et al. (Wylde Corwin Kelly LLP)	In the Circuit Court of the Eleventh Judicial Circuit County of McLean Case No.: 12 L 87	Deposition (Lincoln Electric Company; Hobart Brothers Company)
23-Oct-2015	Kris Penny v. AT&T Corporation, et al. (The Ruckdeschel Law Firm, LLC)	In the United States District Court Middle District of Florida Orlando Division Case No.: 6:15-cv-557-ORL-31KRS	Deposition (AT&T)
25-Aug-2016	Wanda Allen, Individually and as Personal Representative of the Estate of Byron K. Allen, et al. (Dumer & Barnes, P.A.)	In the Circuit Court for Baltimore City Case No.: 24-C-15-003256 OT	Deposition (Clinical Associates, PA: Sinai Hospital of Baltimore, Inc.)
28-Sep-2016	Rudiger & Joan Herion v. Donley's Inc., et al. (Bevan & Associates LPA, Inc.)	In the Court of Common Pleas, Cuyahoga County, Ohio Case No.: 15 CV 848879	Deposition (Donley's Inc.)
11-Jan-2017	Anita M. Albright v. Kevin Anthony Seymour (Law Office of Neil J. Bixler, P.A.: Neil Bixler, Esq.)	Carroll County Circuit Court in Maryland	Trial (Kevin Anthony Seymour)

Expert Testimony of Gregory B. Diette, MD, MHS

Date	Case Name	Case Number	Deposition or Trial
3-Feb-2017	Brian Tucker and Sherri Tucker, his wife v. Momentive Performance Materials USA, Inc., et al. (Motley Rice, LLC; Scott B. Hall, Esq.)	In the United States District Court for the Southern District of West Virginia at Charleston Civil Action No. 2:13-cv-04480	Deposition (Joint Defense)
3-Mar-2017	Dennis John Zampa and Pamela S. Zampa v. Georgia-Pacific LLC, et al. (Kazan, McClain, Satterley & Greenwood: Trey Jones, Esq.)	In the Alameda County Superior Court of California Case No.: RG16836998	Deposition (E.I. Du Pont de Nemours and Company)
8-Mar-2017	Gregory Aregood, Jr., et al. v. International Flavors & Fragrances, Inc., et al. (Humphrey, Farrington & McClain, P.C.: Steven E. Crick, Esq.)	United States District Court for the Southern District of Indiana Action No.: 1:14-CV-00274-LRM-TAB	Deposition (Givaudan Flavors Corporation)
24-Mar-2017	Gregory Aregood, Jr., et al. v. International Flavors & Fragrances, Inc., et al. (Humphrey, Farrington & McClain, P.C.: Steven E. Crick, Esq.)	United States District Court for the Southern District of Indiana Action No.: 1:14-CV-00274-LRM-TAB	Continued Deposition (Givaudan Flavors Corporation)
29-Mar-2017	Dennis John Zampa and Pamela S. Zampa v. Georgia-Pacific LLC, et al. (Kazan, McClain, Satterley & Greenwood: Trey Jones, Esq.)	In the Alameda County Superior Court of California Case No.: RG16836998	Deposition (E.I. Du Pont de Nemours and Company)
6-Sep-2017	Aaron Ruby, et al., v. International Flavor & Fragrances, INC., et al. (Stephen J. Butler, Esq.)	Court of Common Pleas Marion County, Ohio Case No.: 2014 CV 0509	Deposition (Givaudan Flavors Corporation)
14-Dec-2017	Terry Darpel, et al. v. Cargill Flavor Systems US, LLC, et al. (Motley Rice, LLC; Scott B. Hall, Esq.)	Commonwealth of Kentucky Kenton Circuit Court, Division III. Case No.: 12-CI-446	Deposition (Emoral; Berje Incorporated)
17-Jan-2018	Delbert Cohen, Individually, and as Personal Representative of the Estate of Muriel Cohen, et al., v. 84 Lumber Company, et al. (The Ruckdeschel Law Firm, LLC; Z. Stephen Horvat, Esq.)	In the Circuit Court for Prince George's County Case No.: CAL16-37427	Deposition (Hampshire Industries)

Expert Testimony of Gregory B. Diette, MD, MHS

Date	Case Name	Case Number	Deposition or Trial
4-Apr-2018	Darrell Palmer and Norma Palmer v. Appleton GRP, LLC d/b/a Appleton Group and Emerson Electric Co., et al. (Geoge & Farinas, LLP)	In the Marion Superior Court SS: Civil Division Room 2 Cause No. 49D02-1704-MI-016728	Deposition (Rockwell Automation; Reliance Electric)
22-Apr-2018	Gail Lucille Ingham and Robert Ingham, et al. v. Johnson & Johnson; Johnson & Johnson Consumer Companies, Inc.; and Imerys Talc America, Inc., f/k/a Luzenac America, Inc. (The Lanier Law Firm; Sam E. Taylor, Esq.)	In the Circuit Court of the City of St. Louis State of Missouri Cause No. 1522-CC10417-01	Deposition (Johnson & Johnson)
10-Jul-2018	Blades, Kevin, et al. v. Emoral, Inc., f/k/a Polarome International, Inc., et al. (Humphrey, Farrington & McClain; Scott A. Britton-Mehlich)	In the Circuit Court of Jasper County, Missouri Case No. 17AO-CC00025	Deposition (Emoral)
27-Jul-2018	Herman Leischner and Bonnie Leischner v. Aerco International, Inc., et al. (Wylde Corwin Kelly LLP; Stephen Wood, Esq.)	In the Circuit Court of the Eleventh Judicial Circuit County of McLean No. 15 L 53	Deposition (Hobart Brothers and Lincoln Electric)
3-Aug-2018	Marlin Herbst v. Bush Boake Allen, Inc., et al. (Humphrey, Farrington & McClain; Michael S. Kilgore, Esq.)	In the United States District Court Northern District of Iowa Western Division No. C17-4008-MWB	Deposition (Givaudan Flavors Corporation & Emoral, Inc.)
30-Aug-2018	Rosalind Henry and Frederick C. Henry v. Brenntag North America, et al. (Motley Rice LLC; W. Christopher Swett, Esq.)	Superior Court of New Jersey, Middlesex County No. MID-L-1748-17AS	Deposition (Johnson & Johnson Consumer Inc., and Imerys Talc America, Inc.)
28-Sep-2018	Nelcome Courville, Jr. v. Lamorak Insurance Company, et al. (Roussel & Clement; Gerolyn P. Roussel, Esq.)	Civil Dirstric Court for the Parish of New Orleans, Louisiana No. 2017-1117	Deposition (Chemours Company)

Expert Testimony of Gregory B. Diette, MD, MHS

Date	Case Name	Case Number	Deposition or Trial
3-Oct-2018	Rosalind Henry and Frederick C. Henry v. Brenntag North America, et al. (Motley Rice LLC; W. Christopher Swett, Esq.)	Superior Court of New Jersey, Middlesex County No. MID-L-1748-17AS	Trial (Johnson & Johnson Consumer Inc., and Imerys Talc America, Inc.)
17-Oct-2018	Carol Kerkhof, et al. v. Brenntag North American, INC, et al. (Simon Greenstone Panatier Bartlett, PC)	Circuit Court for Montgomery County No. 439392-V	Deposition (Johnson & Johnson, Johnson & Johnson Consumer Inc., and Imerys Talc America, Inc.)
26-Oct-2018	Anastasia Brower, a minor, through her legal guardian Pamela Russell, and Pamela Russell, as the executrix of the Estate of Diane Brower, deceased v. Johnson & Johnson, et al.	In the State Court of Fulton County Fulton State of Georgia No. 16-EV-005534-E	Deposition (Johnson & Johnson, Johnson & Johnson Consumer Inc.)
9-Nov-2018	Paul E. Beach and Rheta E. Beach, Pltfs. vs. 3M Company, etc., et al.	Superior Court of the State of California, County of Alameda - Court of Unlimited Jurisdiction. Case No. RG18893273	Deposition (Rockwell Automation)
13-Dec-2018	Terry Lee Siegfried v. 3M Company, etc., et al. (The Lanier Law Firm; Mark A. Linder, Esq.)	Los Angeles County- Superior Court- Case No. BC691900	Deposition (Rockwell Automation)
9-Jan-2019	Joseph Woon-Shing Lee and Marina Lai-Kuen Lee vs. A. W. Chesterton Company, et al. (Shingler Law; Ronald J. Shingler)	Solano County - Superior Court - Fairfield, CA Case # FCS050176	Deposition (Johnson & Johnson, Johnson & Johnson Consumer Inc.)
25-Jan-2019	Phillip Luna v. The Kerry Group, Inc. et al. (TORHOERMAN LAW, LLC)	Los Angeles County- Superior Court- Case No. BC544985	Deposition (PENTA, et al.)
22-Feb-2019	Lester D. Gardner and Marilyn A. Gardner, etc. vs. ABB INC., etc., et al. (Weinstein Couture, PLLC; Brian D. Weinstein)	Pierce County - Superior Court - Olympia, WA Case No. 172112033	Deposition (Rockwell Automation)

Exhibit 9

Gregory B. Diette, M.D.

Page 1

UNITED STATES DISTRICT COURT

DISTRICT OF NEW JERSEY

-----x

IN RE JOHNSON & JOHNSON) MDL No.
TALCUM POWDER PRODUCTS) 16-2738 (FLW)(LHG)
MARKETING SALES PRACTICES,)
AND PRODUCTS LIABILITY)
LITIGATION)
)
THIS DOCUMENT RELATES TO)
ALL CASES)

-----x

VIDEOTAPED DEPOSITION OF

GREGORY B. DIETTE, M.D.

TOWSON, MARYLAND

TUESDAY, APRIL 9, 2019

8:58 A.M.

Reported by: Leslie A. Todd

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 2</p> <p>1 Deposition of GREGORY B. DIETTE, M.D., held at 2 the: 3 4 5 SHERATON BALTIMORE NORTH HOTEL 6 903 Dulaney Valley Road 7 Towson, Maryland 21204 8 9 10 11 12 13 14 15 16 Pursuant to notice, before Leslie Anne Todd, 17 Court Reporter and Notary Public of the State of 18 Maryland, who officiated in administering the oath 19 to the witness. 20 21 22 23 24 25</p>	<p style="text-align: right;">Page 4</p> <p>1 APPEARANCES (Continued): 2 3 CYNTHIA L. GARBER, ESQUIRE 4 ROBINSON CALCAGNIE, INC. 5 19 Corporate Plaza Drive 6 Newport Beach, California 92660 7 (949) 720-1288 8 9 NATHAN D. FINCH, ESQUIRE 10 MOTLEY RICE LLC 11 401 9th Street, NW 12 Suite 1001 13 Washington, D.C. 20004 14 (202) 232-5507 15 16 ON BEHALF OF THE JOHNSON & JOHNSON DEFENDANTS: 17 ALLISON M. BROWN, ESQUIRE 18 RICHARD M. HEASLIP, ESQUIRE 19 WEIL, GOTSHAL & MANGES LLP 20 17 Hutfish Street, Suite 201 21 Princeton, New Jersey 08542-3792 22 (609) 986-1104 23 24 25</p>
<p style="text-align: right;">Page 3</p> <p>1 A P P E A R A N C E S 2 3 ON BEHALF OF THE PLAINTIFFS: 4 MICHELLE PARFITT, ESQUIRE 5 ADAM K. ROSEN, ESQUIRE 6 ASHCRAFT & GEREL, LLP 7 1825 K Street, N.W. 8 Suite 700 9 Washington, D.C. 20006 10 (202) 783-6400 11 12 CHRISTOPHER V. TISI, ESQUIRE 13 LEVIN PAPANTONIO THOMAS MITCHELL 14 RAFFERTY PROCTOR, P.A. 15 316 South Baylen Street 16 Pensacola, Florida 32502 17 (850) 435-7000 18 19 DENNIS M. GEIER, ESQUIRE 20 COHEN PLACITELLA ROTH, PC 21 127 Maple Avenue 22 Red Bank, New Jersey 07701 23 (732) 747-9003 24 25</p>	<p style="text-align: right;">Page 5</p> <p>1 APPEARANCES (Continued): 2 3 KATHERINE MCBETH, ESQUIRE 4 DRINKER BIDDLE & REATH, LLP 5 One Logan Square, Suite 2000 6 Philadelphia, Pennsylvania 19103-69896 7 (215) 988-2706 8 9 JESSICA D. MILLER, ESQUIRE 10 SKADDEN, ARPS, MEAGHER & FLOM, LLP 11 1440 New York Avenue, N.W. 12 Washington, D.C. 20005 13 (202) 371-7000 14 15 ON BEHALF OF THE PCPC: 16 THOMAS T. LOCKE, ESQUIRE 17 SEYFARTH SHAW LLP 18 975 F Street, N.W. 19 Washington, D.C. 20004-1454 20 (202) 463-2400 21 22 ALSO PRESENT: 23 DANIEL HOLMSTOCK, Videographer 24 25</p>

2 (Pages 2 to 5)

Gregory B. Diette, M.D.

Page 6			Page 8		
1	CONTENTS		1	EXHIBITS (Continued)	
2	EXAMINATION OF GREGORY B. DIETTE, M.D.	PAGE	2	(Attached to transcript)	
3	By Ms. Parfitt	14	3	DIETTE DEPOSITION EXHIBITS	PAGE
4	By Mr. Finch	465	4	No. 13 Document headed "Statement of Dr.	
5	By Ms. Brown	467	5	Anne Mc Tiernan prepared for the	
6			6	Subcommittee on Economic and	
7			7	Consumer Policy Hearing on Examining	
8	EXHIBITS		8	the Public Health Risk on	
9	(Attached to transcript)		9	Carcinogens and Consumer Products,	
10	DIETTE DEPOSITION EXHIBITS	PAGE	10	March 12, 2019"	235
11	No. 1 Notice of Oral and Videotaped		11	No. 14 Draft Screening Assessment, Talc,	
12	Deposition of Gregory Diette, MD,		12	Chemical Abstracts Service Registry	
13	MHS, and Duces Tecum	16	13	Number 14807-96-6, Environment and	
14	No. 2 Defendants' Response to Plaintiffs'		14	Climate Change Canada, Health Canada,	
15	Document Requests Contained in Notice		15	December 2018	267
16	of Oral and Videotaped Deposition of		16	No. 15 Article entitled "Asbestos Exposure	
17	Gregory Diette, M.D., MHS and Duces		17	and Ovarian Fiber Burden," Bates	
18	Tecum	17	18	JNJ 000004999 to 000005003	281
19	No. 3 Expert Report of Gregory Diette, MD,		19	No. 16 Excerpt from "Modern Epidemiology,"	
20	MHS for General Causation Daubert		20	Third Edition, by Rothman, Greenland	
21	Hearing, Supplemental Materials		21	and Lash	289
22	Reviewed and Considered	18	22	No. 17 Taylor and Francis Group article,	
23	No. 4 Article entitled "Ovulation and Risk		23	"Moving to a World Beyond "p < 0.05" 297	
24	of Epithelial Ovarian Cancer"	44	24		
25			25		

Page 7			Page 9		
1	EXHIBITS (Continued)		1	EXHIBITS (Continued)	
2	(Attached to transcript)		2	(Attached to transcript)	
3	DIETTE DEPOSITION EXHIBITS	PAGE	3	DIETTE DEPOSITION EXHIBITS	PAGE
4	No. 5 Bottle of Johnson's Baby Powder		4	No. 18 Article entitled "Retire statistical	
5	(Retained by Plaintiffs' Counsel)	52	5	Significance," by Amrhein, Greenland,	
6	No. 6 Excerpt of Deposition of Susan		6	McShane	299
7	Nicholson, M.D.	82	7	No. 19 Article from Johns Hopkins Institute	
8	No. 7 Document entitled "Appendix C"		8	for Clinical & Translational Research,	
9	Curriculum Vitae of Gregory B.		9	"The American Statistician Special	
10	Diette, MD, MHS	91	10	Issue: Moving to a World Beyond 'P	
11	No. 8 Document from Johns Hopkins Medicine		11	< 0.05'"	308
12	website, entitled "Find an Expert,"		12	No. 20 Supplementary information to: Retire	
13	Gregory Bruce Diette, M.D.	95	13	Statistical significance, Valentin	
14	No. 9 Gregory B. Diette, MD, Associate		14	Amrhein et al.	312
15	Professor, Departmental Affiliations	98	15	No. 21 Document entitled "Gregory Diette,	
16	No. 10 Expert Report of Gregory Diette, MD,		16	MD, MHS: Talc/Ovarian Cancer Disease	
17	MHS for General Causation Daubert		17	Control Studies (Hospital Studies	
18	Hearing	133	18	Below Line)	324
19	No. 11 Document entitled "Appendix E,"		19	No. 22 Chart showing Estimated Relative	
20	Expert Testimony of Gregory B.		20	Risk of Ovarian Cancer, According	
21	Diette, MD, MHS	138	21	to Reported Use of Talc, Bates	
22	No. 12 Document from the Sidney Kimmel		22	JNJ 000013131	327
23	Comprehensive Cancer Center, Risk		23		
24	Factors & Symptoms	213	24		
25			25		

3 (Pages 6 to 9)

Gregory B. Diette, M.D.

Page 10	Page 12
<p>1 EXHIBITS (Continued)</p> <p>2 (Attached to transcript)</p> <p>3 DIETTE DEPOSITION EXHIBITS PAGE</p> <p>4 No. 23 Article entitled "Exposure to</p> <p>5 Secondhand Smoke and Risk of Cancer</p> <p>6 in Never Smokers: A Meta-Analysis of</p> <p>7 Epidemiologic Studies" 366</p> <p>8 No. 24 International Journal of Cardiology</p> <p>9 article, "Risk of all-cause mortality</p> <p>10 and cardiovascular disease associated</p> <p>11 with secondhand smoke exposure: A</p> <p>12 systematic review and meta-analysis" 369</p> <p>13 No. 25 NIH Public Access Author Manuscript,</p> <p>14 "Common Household Activities are</p> <p>15 Associated with Elevated Particulate</p> <p>16 Matter Concentrations in Bedrooms of</p> <p>17 Inner-City Baltimore Pre-School</p> <p>18 Children" 377</p> <p>19 No. 26 "The Health Consequences of</p> <p>20 Involuntary Exposure to Tobacco</p> <p>21 Smoke," A Report of the Surgeon</p> <p>22 General 377</p> <p>23 No. 27 IARC Monograph entitled "Arsenic,</p> <p>24 Metals, Fibres and Dusts," Volume</p> <p>25 100 C, A review of Human Carcinogens 392</p>	<p>1 EXHIBITS (Continued)</p> <p>2 (Attached to transcript)</p> <p>3 DIETTE DEPOSITION EXHIBITS PAGE</p> <p>4 No. 34 Article entitled "Possible Role of</p> <p>5 Epithelial Inflammation in Ovarian</p> <p>6 Cancer" 442</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
Page 11	Page 13
<p>1 EXHIBITS (Continued)</p> <p>2 (Attached to transcript)</p> <p>3 DIETTE DEPOSITION EXHIBITS PAGE</p> <p>4 No. 28 Table 2.8 Epidemiologic studies of</p> <p>5 asbestos exposure and ovarian cancer</p> <p>6 (and, for comparison, lung cancer</p> <p>7 and mesothelioma) 396</p> <p>8 No. 29 Article entitled "Association between</p> <p>9 Body Powder Use and Ovarian Cancer:</p> <p>10 The African American Cancer</p> <p>11 Epidemiology Study (AACES)" 413</p> <p>12 No. 30 Article entitled "Perineal Talc Use</p> <p>13 and Ovarian Cancer, A Systematic</p> <p>14 Review and Meta-Analysis" 416</p> <p>15 No. 31 Ultrastructural Pathology article,</p> <p>16 "Correlative polarizing light and</p> <p>17 scanning electron microscopy for</p> <p>18 the assessment of talc in pelvic</p> <p>19 region lymph nodes" 427</p> <p>20 No. 32 Letter to Samuel Epstein from the</p> <p>21 Department of Health and Human</p> <p>22 Services, dated April 1, 2014 431</p> <p>23 No. 33 Facsimile dated September 30,</p> <p>24 2004 to Luzenac America from</p> <p>25 Richard Zazenski to Bill Ashton 437</p>	<p>1 PROCEEDINGS</p> <p>2 -----</p> <p>3 THE VIDEOGRAPHER: We are now on the</p> <p>4 record, and my name is Daniel Holmstock. I am the</p> <p>5 videographer for Golkow Litigation Services.</p> <p>6 Today's date is April 9th, 2019, and the time on</p> <p>7 the video screen is 8:58 a.m.</p> <p>8 This video deposition is being held at</p> <p>9 the Sheraton Baltimore North Hotel, at 903 Dulaney</p> <p>10 Valley Road in Towson, Maryland, in the matter of</p> <p>11 Johnson & Johnson Talcum Powder Products</p> <p>12 Marketing, Sales Practices and Products Liability</p> <p>13 Litigation, MDL No. 2738, and is pending before</p> <p>14 the United States District Court for the Eastern</p> <p>15 District of New Jersey.</p> <p>16 Our deponent today is Dr. Gregory</p> <p>17 Diette.</p> <p>18 Counsel for appearances will be noted on</p> <p>19 the stenographic record. And our court reporter</p> <p>20 today is Leslie A. Todd, who will now administer</p> <p>21 the oath.</p> <p>22 GREGORY B. DIETTE, M.D.,</p> <p>23 and having been first duly sworn,</p> <p>24 was examined and testified as follows:</p> <p>25 DIRECT EXAMINATION</p>

4 (Pages 10 to 13)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 14</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Good morning, Dr. Diette. How are you?</p> <p>3 A Good morning. Fine, thanks.</p> <p>4 Q Good. We will dispense with the usual</p> <p>5 comments with regard to a deposition. I</p> <p>6 understand you've had --</p> <p>7 THE VIDEOGRAPHER: Microphone.</p> <p>8 BY MS. PARFITT:</p> <p>9 Q All right. Now we're back on the mic.</p> <p>10 Dr. Diette, we'll dispense with the</p> <p>11 usual comments with regard to what a deposition is</p> <p>12 about. I understand you've probably had your</p> <p>13 deposition taken more than a hundred times. Is</p> <p>14 that fair?</p> <p>15 A I don't know if it's a hundred, but --</p> <p>16 but plenty enough that I think that I -- I</p> <p>17 understand the process.</p> <p>18 Q All right. The only one that I will ask</p> <p>19 you to pay some attention to is the fact that if</p> <p>20 you don't understand my question, please let me</p> <p>21 know. Otherwise, I'm going to assume you</p> <p>22 understand every question that I ask, and the</p> <p>23 answers that you're giving are truthful and</p> <p>24 accurate. Fair enough?</p> <p>25 A It is.</p>	<p style="text-align: right;">Page 16</p> <p>1 jury.</p> <p>2 A Sure. It's Gregory --</p> <p>3 MS. BROWN: Objection. There's no jury</p> <p>4 here.</p> <p>5 MS. PARFITT: There may be.</p> <p>6 MS. BROWN: Go ahead, Dr. Diette.</p> <p>7 THE WITNESS: My parents gave it to me,</p> <p>8 for what it's worth, but it's Gregory Bruce</p> <p>9 Diette.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Okay. Very good.</p> <p>12 Dr. Diette, what I'd like to do is mark</p> <p>13 as Exhibit 1 a notice of the deposition.</p> <p>14 (Diette Exhibit No. 1 was marked</p> <p>15 for identification.)</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Dr. Diette, if I may, Exhibit 1 is the</p> <p>18 notice of deposition. Have you seen that document</p> <p>19 before?</p> <p>20 A Yeah, I've certainly seen -- seen</p> <p>21 something just like this.</p> <p>22 Q All right. Do you see at the back of</p> <p>23 the deposition, there is a notice that -- there is</p> <p>24 a request for you to bring certain information to</p> <p>25 your deposition? Do you see that?</p>
<p style="text-align: right;">Page 15</p> <p>1 Q All right. Now, you're sitting here</p> <p>2 today in Towson, Maryland, in a Sheraton Hotel; is</p> <p>3 that correct?</p> <p>4 A That is.</p> <p>5 Q All right. You are normally, I believe,</p> <p>6 over at Johns Hopkins University Medical Center,</p> <p>7 correct?</p> <p>8 A That's right.</p> <p>9 Q All right. Is your department aware of</p> <p>10 the fact that you're sitting over here having a</p> <p>11 deposition taken?</p> <p>12 A I don't know if anybody knows about this</p> <p>13 today, but they wouldn't be surprised, I mean, to</p> <p>14 hear it if I told them.</p> <p>15 Q All right. They know that you</p> <p>16 frequently give depositions so they would not be</p> <p>17 surprised; is that correct?</p> <p>18 MS. BROWN: Objection to form.</p> <p>19 THE WITNESS: They -- I don't know about</p> <p>20 frequently, but they know that -- that I do give</p> <p>21 depositions.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q All right. Very good.</p> <p>24 Would you please introduce your formal</p> <p>25 God-given name for the ladies and gentlemen of the</p>	<p style="text-align: right;">Page 17</p> <p>1 A Yes.</p> <p>2 Q All right. Have you had a chance to</p> <p>3 review that?</p> <p>4 A I have.</p> <p>5 Q All right. How recently?</p> <p>6 A Last week sometime.</p> <p>7 Q All right. Was it provided to you by</p> <p>8 counsel?</p> <p>9 A I think that's the only way I could get</p> <p>10 it.</p> <p>11 Q Okay. Very good.</p> <p>12 Now, yesterday, perhaps early in the</p> <p>13 morning, I was also provided a copy of the</p> <p>14 Defendants' Response to the Plaintiffs' Document</p> <p>15 Requests Contained in the Notice of Oral and</p> <p>16 Videotaped Deposition.</p> <p>17 Let me show you what we will have marked</p> <p>18 as Exhibit No. 2.</p> <p>19 (Diette Exhibit No. 2 was marked</p> <p>20 for identification.)</p> <p>21 BY MS. PARFITT:</p> <p>22 Q Dr. Diette, let me present you with a</p> <p>23 copy of Exhibit No. 2.</p> <p>24 All right. Dr. Diette, my understanding</p> <p>25 is that this document, Exhibit No. 2, represents</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 18</p> <p>1 your responses to the requests that were</p> <p>2 propounded upon you to -- for documents and other</p> <p>3 materials prior to your deposition, correct?</p> <p>4 MS. BROWN: Objection to the form. It</p> <p>5 represents the lawyer's objections to the document</p> <p>6 requests you served.</p> <p>7 MS. PARFITT: Fair.</p> <p>8 THE WITNESS: I -- I think Ms. Brown's</p> <p>9 got it right.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q All right. Did you -- well, let's have</p> <p>12 marked the attachment to the response to</p> <p>13 plaintiffs' document, which was prepared by your</p> <p>14 lawyers. And let's separately mark as Exhibit</p> <p>15 No. 3 the attachments, if you will.</p> <p>16 A Should I pull this apart or -- or you</p> <p>17 want to do that?</p> <p>18 Q And for purposes of the record,</p> <p>19 Exhibit 2 will represent the entire document, the</p> <p>20 response to plaintiffs' request, and No. 3 will</p> <p>21 represent just the attachments to the request,</p> <p>22 which would be material that you, Dr. Diette, were</p> <p>23 to provide.</p> <p>24 (Diette Exhibit No. 3 was marked</p> <p>25 for identification.)</p>	<p style="text-align: right;">Page 20</p> <p>1 much.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q All right. Dr. Diette, number -- or</p> <p>4 Exhibit No. 3, the first document, Supplemental</p> <p>5 Materials Reviewed and Considered, did you prepare</p> <p>6 this Supplemental Materials Reviewed and</p> <p>7 Considered?</p> <p>8 A I contributed to it, but I didn't do the</p> <p>9 typing.</p> <p>10 Q Okay. What does that mean when you say</p> <p>11 you contributed to it?</p> <p>12 A I helped to clarify what other --</p> <p>13 because this -- this looks like it's all</p> <p>14 reports -- I just want to make sure what's here --</p> <p>15 reports, a couple of papers probably, and I -- I</p> <p>16 helped to verify that these were also things that</p> <p>17 I had -- had received and had a chance to look at.</p> <p>18 Q All right. So would it be fair to say</p> <p>19 that the 23 items listed on this were materials</p> <p>20 that somebody typed on a list and asked that you</p> <p>21 review it; is that correct?</p> <p>22 MS. BROWN: Objection to the form.</p> <p>23 Misstates his testimony.</p> <p>24 THE WITNESS: So I think, just in terms</p> <p>25 of the sequence, I mean I've gotten materials in</p>
<p style="text-align: right;">Page 19</p> <p>1 BY MS. PARFITT:</p> <p>2 Q And we'll briefly just review what's</p> <p>3 here, so we can move on to other areas.</p> <p>4 The first page of that document</p> <p>5 indicates supplemental materials reviewed and</p> <p>6 considered.</p> <p>7 MS. BROWN: Counsel, can we go off the</p> <p>8 record for a second?</p> <p>9 MS. PARFITT: Yes.</p> <p>10 THE VIDEOGRAPHER: The time is 9:03.</p> <p>11 We're going off the record.</p> <p>12 (Pause in the proceedings.)</p> <p>13 THE VIDEOGRAPHER: The time is 9:04 a.m.</p> <p>14 We're back on the record.</p> <p>15 MS. BROWN: Good morning. This is Ali</p> <p>16 Brown for J&J. We're back on the record, having</p> <p>17 taken a short break to put the cameras on both the</p> <p>18 questioner and myself, and we'll proceed, of</p> <p>19 course, with the camera on Dr. Diette. Thank you.</p> <p>20 MS. PARFITT: Thank you. And I should</p> <p>21 have asked, there's no one on the phone, is there,</p> <p>22 today?</p> <p>23 THE VIDEOGRAPHER: There is no phone</p> <p>24 present here today.</p> <p>25 MS. PARFITT: Perfect. Thank you very</p>	<p style="text-align: right;">Page 21</p> <p>1 this matter over a period of time, right. So they</p> <p>2 come in dribs and drabs. And a lot of this looks</p> <p>3 like some of the more recent things that came, you</p> <p>4 know, because you guys have been doing</p> <p>5 depositions, and some of the reports came in later</p> <p>6 and so forth. So it's really -- that's how I got</p> <p>7 the materials, and then this is just to make sure</p> <p>8 that I had a complete list of everything that I've</p> <p>9 gotten.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q All right. And the reason I asked is</p> <p>12 because you submitted your report on</p> <p>13 February 25th, 2019. So may I assume that</p> <p>14 everything on the list, Exhibit No. 3, the first</p> <p>15 page, supplemental, represents documents you</p> <p>16 received after February 25th, 2019, correct?</p> <p>17 MS. BROWN: Objection to the form.</p> <p>18 THE WITNESS: I wouldn't assume that. I</p> <p>19 mean, so certainly some things here, right. So</p> <p>20 the expert reports that are dated 2/25, I didn't</p> <p>21 have, you know, even on the day that I submitted</p> <p>22 mine, so those came after. Something like the</p> <p>23 Barnard study, I may well have had that. I mean,</p> <p>24 my -- my goal here was to -- just to make sure</p> <p>25 that we hadn't left anything off.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 22</p> <p>1 BY MS. PARFITT:</p> <p>2 Q All right. Is it fair to say that the</p> <p>3 items that are listed on Exhibit No. 2 -- 3 were</p> <p>4 not items that you considered for purposes of the</p> <p>5 opinions you've expressed in your report of</p> <p>6 February 25th, 2019?</p> <p>7 MS. BROWN: Objection to the form.</p> <p>8 THE WITNESS: So I -- it's very possible</p> <p>9 that the Barnard study I did consider. Trabert, I</p> <p>10 can't remember. But definitely, right, the expert</p> <p>11 reports that are dated on 2/25, I couldn't have</p> <p>12 considered. And anything that's a deposition</p> <p>13 transcript that happened after 2/25, obviously I</p> <p>14 couldn't have considered that either.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q All right. Very good.</p> <p>17 The information thereafter, I believe we</p> <p>18 have -- one, two, three -- four invoices. They</p> <p>19 begin with the date of 12/14/2018, and end with a</p> <p>20 date of 3/15/19.</p> <p>21 Are there any other invoices that you</p> <p>22 would like to share with me today?</p> <p>23 A I don't have any others that I'm aware</p> <p>24 of.</p> <p>25 Q Are you preparing any invoices for your</p>	<p style="text-align: right;">Page 24</p> <p>1 Q All right. Let me get this straight.</p> <p>2 Your hourly rate is 485.</p> <p>3 A Well, sort of. I'll describe it if</p> <p>4 you'd like here.</p> <p>5 Q Well, I -- you can understand my</p> <p>6 confusion. If your hourly rate is 485, I want to</p> <p>7 know you're -- why I'm getting --</p> <p>8 A You don't need to be confused for very</p> <p>9 long, though.</p> <p>10 MS. BROWN: Hold on. Hold on.</p> <p>11 Counsel, you've got to let him answer</p> <p>12 the question.</p> <p>13 MS. PARFITT: Sure.</p> <p>14 MS. BROWN: He is endeavoring to set</p> <p>15 that straight.</p> <p>16 MS. PARFITT: Please.</p> <p>17 MS. BROWN: So go ahead.</p> <p>18 THE WITNESS: I think it's pretty easy.</p> <p>19 I charge \$400 an hour, and Medical Science</p> <p>20 Affiliates prepares this invoice, and part of</p> <p>21 their business model is to add an hourly rate</p> <p>22 to -- to my rate.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. And I want to talk a little bit</p> <p>25 about that in a moment, but that's exactly one of</p>
<p style="text-align: right;">Page 23</p> <p>1 time post the very last invoice which is dated</p> <p>2 3/15/2019?</p> <p>3 A I will be.</p> <p>4 Q All right. How many hours have you</p> <p>5 spent since your submitting the invoice of</p> <p>6 3/15/2019?</p> <p>7 A Let's see, three -- I would estimate</p> <p>8 about -- about 20 hours or maybe 25 hours, give or</p> <p>9 take.</p> <p>10 Q All right. And what is your hourly</p> <p>11 rate?</p> <p>12 A So to clarify, so when on here it says</p> <p>13 it's 485, my -- my rate itself is actually \$400 an</p> <p>14 hour, and that's the amount that was charged.</p> <p>15 Q Okay. Now, is the amount that was</p> <p>16 charged, 400, because you worked with someone else</p> <p>17 who assists you with preparing the materials?</p> <p>18 A It's not --</p> <p>19 MS. BROWN: Objection to the form of the</p> <p>20 question.</p> <p>21 THE WITNESS: Sorry.</p> <p>22 MS. BROWN: Go ahead. You can answer.</p> <p>23 THE WITNESS: No, it's because that's</p> <p>24 how much I've asked to be paid is \$400 per hour.</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 25</p> <p>1 the issues I need some clarification on. But</p> <p>2 let's finish up the bills.</p> <p>3 A Mm-hmm.</p> <p>4 Q We have a bill for 12/14/2018 for</p> <p>5 \$17,103.75. Correct?</p> <p>6 A Correct.</p> <p>7 Q And we have a bill for 1/15/2018 for</p> <p>8 \$5,068.02, correct?</p> <p>9 A That's correct.</p> <p>10 Q We have a bill for 2/12/2019 for</p> <p>11 \$35,375. Is that correct?</p> <p>12 A It is.</p> <p>13 Q And we have a bill for \$20,973.75; is</p> <p>14 that correct?</p> <p>15 A It is.</p> <p>16 Q And then we have an additional 20, maybe</p> <p>17 25 hours that you will charge at the rate of \$400,</p> <p>18 although Medical Science Affiliates gets \$85 of</p> <p>19 that, correct?</p> <p>20 A That's correct, although I think -- I</p> <p>21 don't know if you're following -- well, that's</p> <p>22 correct. Go ahead.</p> <p>23 Q Okay. And we'll explore that in a</p> <p>24 minute.</p> <p>25 A Okay.</p>

7 (Pages 22 to 25)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 26</p> <p>1 Q Now, attached to that is -- it has an 2 exhibit on it, Plaintiffs' Exhibit No. 7, and it 3 appears to be several pages of notes. 4 Do you see that? 5 A I do. 6 Q All right. What are these notes? 7 A Well, these -- I haven't looked to see 8 for sure what's -- 9 MS. BROWN: And, Counsel, just to make 10 sure the record is clear, this was produced in 11 response per your request for his notes that were 12 marked at the Ingham deposition. So this exhibit 13 number is the marking from the Ingham deposition, 14 and these were the notes that he produced there 15 that I'm frankly sure you have access to, but in 16 the effort of cooperation, we reproduced them here 17 per your request. 18 BY MS. PARFITT: 19 Q So, Doctor -- 20 A It's -- oh, go ahead. I'm sorry. 21 Q Go ahead. You were going to tell me 22 what they are. 23 A Yeah, and I didn't know if that was 24 the -- the sufficient answer, because that's 25 literally, I guess, what they are right there.</p>	<p style="text-align: right;">Page 28</p> <p>1 that I just made as I was reading through 2 different articles. 3 Q Okay. Would -- 4 A No, I'm sorry. 5 Q Are you finished? 6 A No, that's just what I was going to say, 7 so these are -- it just represents just notes that 8 I was making at certain times when I was looking 9 at some of the articles. 10 Q Okay. When did you first start looking 11 at any of the articles? 12 A Sometime in -- by -- if we're talking 13 about the articles, meaning articles pertaining to 14 ovarian cancer and talcum powder, is it? 15 Q Well, it's a good question, because you 16 just said when you started looking at any of the 17 articles, are you talk- -- do these represent any 18 articles or do these represent articles of ovarian 19 cancer and talcum powder? 20 A Yeah, yeah. 21 MS. BROWN: And hold on, I think the 22 record is going to be unclear. When you say 23 "these," are you referring to what has been marked 24 as Plaintiffs' Exhibit 7 in response to your -- 25 MS. PARFITT: Correct.</p>
<p style="text-align: right;">Page 27</p> <p>1 These are -- they're an exhibit. But did you mean 2 something else, like -- 3 Q Well, now that I've had clarification by 4 your attorney, that does help a bit, but I do have 5 a couple of questions. 6 MS. MILLER: For the record, she's not 7 his attorney. She's J&J's attorney. 8 MS. PARFITT: We're going to have one 9 examiner today. So you and Ali decide who that's 10 going to be. 11 MS. BROWN: Okay. Counsel, let's keep 12 going with the questions for Dr. Diette so we 13 don't waste the doctor's time. 14 MS. PARFITT: Believe me, I don't want 15 to waste my time. So let's -- okay. I realize 16 every now and again it happens. 17 BY MS. PARFITT: 18 Q So, Dr. Diette, these are notes that you 19 prepared back at the time of the Ingham 20 deposition, correct? 21 A So not literally. Right, there are -- I 22 was asked, and I don't remember exactly what -- 23 what was on the notice, but I was asked to bring 24 any notes that I had made. So they're not 25 necessarily for the Ingham matter. They're notes</p>	<p style="text-align: right;">Page 29</p> <p>1 MS. BROWN: -- notice of deposition? 2 Okay. 3 THE WITNESS: So this would have been 4 sometime in 2017 that -- that I started. I don't 5 know if these notes were made in 2017, but I 6 just mean that that's the answer to when I started 7 to look at those article -- articles. 8 BY MS. PARFITT: 9 Q And we'll get to that timeline in a 10 moment. 11 Are there any additional notes that you 12 have prepared post Plaintiffs' Exhibit No. 7, 13 which I understand you presented at the Ingham 14 deposition? 15 A I don't think so. I'll give you an 16 example of something that I don't know whether you 17 consider it a note or not. 18 Q Okay. 19 A Like as I was preparing my report, I 20 would put like a -- like a little sticker on a 21 paper where I wanted to pull a quote into the -- 22 into the paper, and then I would tear that off and 23 throw it away because it wasn't, you know, useful 24 anymore. But nothing else that kind of -- that 25 looks like this.</p>

Gregory B. Diette, M.D.

Page 30	Page 32
<p>1 Q All right. So you would put a sticker</p> <p>2 on a paper like when I wanted to put a quote in,</p> <p>3 and then I tore it off.</p> <p>4 Are these medical records that -- or</p> <p>5 excuse me, medical articles that you were</p> <p>6 reviewing?</p> <p>7 A These are scientific articles, yeah, the</p> <p>8 ones that informed my report.</p> <p>9 Q All right. So do you have a stack of</p> <p>10 scientific and medical articles that informed your</p> <p>11 report at your office, at your home?</p> <p>12 A I've got -- I've got little piles of</p> <p>13 stuff everywhere you can look.</p> <p>14 Q Okay. Do any of them have markings on</p> <p>15 them or any stickies?</p> <p>16 A I don't think there's any stickies</p> <p>17 anymore. If they have markings, there could be</p> <p>18 some that have yellow highlights.</p> <p>19 Q All right.</p> <p>20 A But I don't think any that have like</p> <p>21 writing on them per se.</p> <p>22 Q Okay. But there might be yellow</p> <p>23 highlights on them, correct?</p> <p>24 A There sure could be, yeah. Not on all</p> <p>25 of them, but could be on some.</p>	<p>1 objections to those document requests, and</p> <p>2 Dr. Diette's testimony will be consistent with</p> <p>3 that.</p> <p>4 MS. PARFITT: My question -- are you</p> <p>5 objecting to providing me with a copy of</p> <p>6 Dr. Diette's agreement with Medical Science</p> <p>7 Affiliates?</p> <p>8 MS. BROWN: Well, we haven't even</p> <p>9 established that there is such a thing. I</p> <p>10 understand you to be getting into questions</p> <p>11 regarding Medical Sciences.</p> <p>12 MS. PARFITT: I will, yeah.</p> <p>13 MS. BROWN: I understand you've asked a</p> <p>14 number of document requests regarding Medical</p> <p>15 Sciences, and I just want to make sure that the</p> <p>16 record is clear that we have endeavored to respond</p> <p>17 to those and object accordingly.</p> <p>18 MS. PARFITT: Okay. And we're going to</p> <p>19 try and reduce the number of narrative objections</p> <p>20 if we can so we can get through this --</p> <p>21 THE WITNESS: I remember your question</p> <p>22 if you want me to answer it.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q I do.</p> <p>25 I wanted to know in response to request</p>
Page 31	Page 33
<p>1 Q All right.</p> <p>2 MS. PARFITT: I'll address this with</p> <p>3 counsel later, but I would request copies of all</p> <p>4 those highlighted articles that you may have</p> <p>5 somewhere. But we can talk about that --</p> <p>6 MS. BROWN: We can talk about that off</p> <p>7 the record.</p> <p>8 THE WITNESS: Okay.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q All right. So other than notations on</p> <p>11 some medical and scientific articles, there would</p> <p>12 be no additional notes like that which forms part</p> <p>13 of the part of Plaintiffs' Exhibit 7, correct?</p> <p>14 A Correct.</p> <p>15 Q All right. In the request to appear</p> <p>16 here at your deposition, there was an inquiry with</p> <p>17 regard to, I believe you called it, Medical</p> <p>18 Science Affiliates.</p> <p>19 A Correct.</p> <p>20 Q All right. Do you have a retainer</p> <p>21 agreement with Medical Science Affiliates?</p> <p>22 MS. BROWN: And I'm just going to</p> <p>23 interject here, Counsel. To the extent you've</p> <p>24 made a request for any documentation regarding</p> <p>25 Medical Science Affiliates, you have our</p>	<p>1 number 14, whether or not you have any contracts,</p> <p>2 agreements, writings conveying mutual</p> <p>3 understandings between you and Medical Science</p> <p>4 Affiliates or any entity of or related to Medical</p> <p>5 Science Affiliates for the past ten years?</p> <p>6 MS. BROWN: And, Counsel, I'm going to</p> <p>7 object to the extent that any of those requests or</p> <p>8 documentation involve work product that we have</p> <p>9 asserted privilege over, he will not be answering</p> <p>10 that question under the work-product privilege.</p> <p>11 MS. PARFITT: Okay, Counsel, you can</p> <p>12 assert work product. Got it. Is that what you're</p> <p>13 asserting right now?</p> <p>14 MS. BROWN: Yes. He's not going to</p> <p>15 answer that question. We're asserting work</p> <p>16 product.</p> <p>17 MS. PARFITT: So he is not going to</p> <p>18 answer my question with regard to any agreement or</p> <p>19 writing or contracts that he has with Medical</p> <p>20 Science Affiliates under the guidance of counsel</p> <p>21 that is objecting and refusing to have you answer</p> <p>22 that question. Is that correct -- record correct?</p> <p>23 MS. BROWN: That's correct, Counsel.</p> <p>24 MS. PARFITT: Okay.</p> <p>25 BY MS. PARFITT:</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 34</p> <p>1 Q And we're going to talk about Medical 2 Science in just -- just a moment. 3 Anything else other than the documents 4 that I have in front of you, Exhibit 7, the 5 invoice and your supplemental reliance, that you 6 have brought to your deposition today? 7 A So I didn't bring this today. 8 Q Okay. Fair enough. 9 A I mean I -- I didn't bring anything -- I 10 mean I didn't bring any materials to the 11 deposition. 12 Q Okay. 13 All right. Dr. Diette, what is your 14 profession? 15 A Well, I'm a physician, epidemiologist, 16 researcher. 17 Q Okay. You're actually a professor of 18 medicine at the Department of Pulmonary and 19 Critical Care, is that correct, at Johns Hopkins? 20 A Literally it's the Department of 21 Internal Medicine, and it's the Division of 22 Pulmonary, Critical Care, and Sleep Medicine. 23 Q Okay. Dr. Diette, do you agree that 24 ovarian cancer ranks as the fifth cause of 25 neoplastic death among women?</p>	<p style="text-align: right;">Page 36</p> <p>1 THE WITNESS: I've seen -- I've seen it 2 ranked highly. I don't remember if it was fifth, 3 but I've seen it ranked highly. 4 BY MS. PARFITT: 5 Q All right. Are you aware of the fact 6 that ovarian cancer accounts for more deaths than 7 any other cancer in the female reproductive 8 system? 9 A Ovarian cancer. Is that -- is that a 10 statement from a -- like a document or something? 11 Q It's a question. 12 A It's a question that -- 13 Q Do you know whether or not ovarian 14 cancer accounts for more deaths than any other 15 cancer of the female reproductive system? 16 A I know it's a highly ranked one. I 17 wouldn't be able to say whether it's more than all 18 others. 19 Q All right. Do you know whether 20 approximately 22,000 new cases of ovarian cancer 21 identified each year and 14,000 women 22 approximately will die in the United States alone 23 from ovarian cancer? 24 MS. BROWN: Objection to the form. 25 THE WITNESS: I haven't memorized</p>
<p style="text-align: right;">Page 35</p> <p>1 A I've seen -- I've seen it listed on -- 2 you know, on lists of causes of death. I don't 3 know what you mean by "agree with," but I mean -- 4 Q Do you have a difference of opinion as 5 to whether or not ovarian cancer ranks fifth with 6 regard to causes of neoplastic death among women? 7 MS. BROWN: Objection. Asked and 8 answered. 9 THE WITNESS: It doesn't seem to be 10 something that there's an opinion on. That's what 11 I mean. I mean it's like an objective fact. I 12 mean if there's a list that's put out by, you 13 know, government stats, and it's number 5 on that 14 list, that's -- that's an objective fact. 15 BY MS. PARFITT: 16 Q Do you object to that? 17 MS. BROWN: Let him answer, Counsel. 18 MS. PARFITT: I have. Thank you. 19 Are you objecting as -- 20 BY MS. PARFITT: 21 Q Let me ask you this, Doctor. 22 A Okay. 23 Q Have you seen that in any published 24 scientific literature? 25 MS. BROWN: Objection to the form.</p>	<p style="text-align: right;">Page 37</p> <p>1 anything with exact numbers like that. I mean I'm 2 not saying it's far off from the truth, and if you 3 have, you know, some document that supports that, 4 I'd be glad to look at it and see if it looks 5 right, but -- but I haven't memorized the exact 6 number. 7 BY MS. PARFITT: 8 Q All right. And you know, Dr. Diette, 9 this won't be a memory test, but I do understand 10 that you have spent almost \$100,000 in this case 11 alone reviewing medical and scientific articles, 12 so all I'm simply asking is that you provide me 13 with your best answers. Fair? 14 MS. BROWN: I object to the -- 15 MS. PARFITT: That's all, Counsel. 16 That's all -- 17 MS. BROWN: -- speech by counsel. He's 18 here to answer your questions. 19 MS. PARFITT: Counsel -- 20 MS. BROWN: That is a highly 21 objectionable statement, Counsel, and you know it. 22 If you have a question to ask him, he is here to 23 answer it. We're not going to be here to have you 24 give speeches on the record about the fees that he 25 has charged for the work that he has done.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 38</p> <p>1 MS. PARFITT: Ms. Brown, your objection, 2 according to the CMO in the MDL case, perhaps 3 you're doing other state depositions, is that you 4 say, "Objection. Form." 5 And I'll try and do my best, if you'd do 6 the same. And I'm not admonishing you, and I hope 7 you're not admonishing me. That's not how I roll. 8 MS. BROWN: Well, the record is going to 9 be very clear -- 10 MS. PARFITT: It will be. 11 MS. BROWN: -- about the statement that 12 you just made about the other work that I'm doing. 13 MS. PARFITT: I said -- 14 MS. BROWN: I am well aware of the 15 CMO -- 16 MS. PARFITT: Perfect. Okay. 17 Counsel -- 18 MS. BROWN: -- and the deposition 19 protocol in this case. 20 MS. PARFITT: -- that's fine. 21 MS. BROWN: And I -- 22 MS. PARFITT: Counsel -- 23 MS. BROWN: -- expect that you will 24 abide by it -- 25 MS. PARFITT: -- let me ask questions.</p>	<p style="text-align: right;">Page 40</p> <p>1 thinking about your question before, I just wanted 2 to clarify that I -- because when you said that I 3 billed \$100,000, I think what you might be doing 4 is adding up all of those MSA invoices, which that 5 doesn't all go to me. I mean there's a way to 6 figure out how much that I've billed, but -- but 7 you wouldn't be correct if you're saying that 8 those four invoices represent the amount that I've 9 charged. 10 Q Okay. And we'll talk about that, but I 11 appreciate the clarification. 12 So, the other question is, do you have 13 an understanding that most ovarian cancer cases 14 are detected and diagnosed at a late stage and 15 there are limited prospects for cure? 16 MS. BROWN: Same objection. 17 THE WITNESS: I have that general 18 understanding. 19 BY MS. PARFITT: 20 Q Okay. Do you have any knowledge as to 21 what the mortality and morbidity of ovarian cancer 22 is? 23 A Well, the morbidity is not a number, 24 right. I mean you're talking about what are the 25 consequences?</p>
<p style="text-align: right;">Page 39</p> <p>1 MS. BROWN: -- and not interrupt me. 2 Thank you. 3 MS. PARFITT: I am not going to, but I 4 would ask the same courtesy. And, listen, we have 5 a long day to go, and it will be longer -- 6 MS. BROWN: Just ask the doctor a 7 question and move on. 8 MS. PARFITT: -- if we go back and 9 forth. "Objection, form" is the appropriate way, 10 or we will have to call the judge. 11 MS. BROWN: Happy to do it. 12 MS. PARFITT: Very good. So will I. 13 BY MS. PARFITT: 14 Q All right. Dr. Diette, do you have an 15 understanding from your review of the scientific 16 and medical literature that ovarian cancer cases 17 are detected and diagnosed at a late stage and 18 there are limited prospects for cure? 19 MS. BROWN: Objection to the form of the 20 question. 21 THE WITNESS: I didn't listen to what 22 you said because -- 23 BY MS. PARFITT: 24 Q Sure. 25 A But just for the reason that I'm still</p>	<p style="text-align: right;">Page 41</p> <p>1 Q You're right. 2 A And then the mortality would be 3 something that's an objective fact that there's a 4 percentage of people with the disease that die. 5 Q Right. 6 A I don't know the number. I didn't 7 memorize that. If it's important, we can look it 8 up, but it's a high -- it's a high proportion that 9 die from it. 10 Q Fair. Do you know what the latency is 11 for ovarian cancer? 12 A Between what and what? 13 Q The latency period between -- let's take 14 some examples -- asbestos and ovarian cancer. 15 MS. BROWN: Objection to the form of the 16 question. 17 You can answer if you understand. 18 THE WITNESS: So the -- that's a tricky 19 issue, I think in a way, because I'm not sure that 20 it's been fully established that asbestos causes 21 ovarian cancer. I mean I'm aware of what the IARC 22 has put out on it, but I'm not sure that that's a 23 fact. But I don't recall seeing in there where 24 the latency, if it was even true, whether that 25 was -- whether that was established.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 42</p> <p>1 BY MS. PARFITT:</p> <p>2 Q All right. Have you in the course of --</p> <p>3 strike that.</p> <p>4 All right. From a review of the</p> <p>5 materials you reviewed attached to your expert</p> <p>6 report, Doctor, I see that you reviewed the Purdie</p> <p>7 case --</p> <p>8 MS. BROWN: Counsel -- Counsel, is there</p> <p>9 a page you want to point him to so we can follow</p> <p>10 along?</p> <p>11 MS. PARFITT: I'm still asking the</p> <p>12 question, Counsel.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Dr. Diette, attached to your report is a</p> <p>15 materials reviewed. And on page 7, it lists that</p> <p>16 you have read the Purdie case, which is a 1995</p> <p>17 case study -- excuse me, not case study, but a</p> <p>18 scientific article.</p> <p>19 MS. BROWN: Objection to the form.</p> <p>20 Take your time to get to that page,</p> <p>21 Doctor.</p> <p>22 THE WITNESS: It's 7 in my report?</p> <p>23 BY MS. PARFITT:</p> <p>24 Q It is on page 7 of your report.</p> <p>25 MS. BROWN: And, Counsel, I think we</p>	<p style="text-align: right;">Page 44</p> <p>1 Q Okay. All right. And we're going to</p> <p>2 talk about that in conjunction with -- just hold</p> <p>3 tight. I'm going to set that aside, and let me</p> <p>4 ask you this --</p> <p>5 A Can I ask just real quick?</p> <p>6 Q Sure.</p> <p>7 A There's like a cold breeze blowing down</p> <p>8 here, and I know we will regret making it warmer</p> <p>9 in here at some point.</p> <p>10 Q Sure.</p> <p>11 MS. PARFITT: Well, let's take a moment</p> <p>12 and let's see if we can --</p> <p>13 MS. BROWN: Why don't we go off the</p> <p>14 record for one second.</p> <p>15 THE VIDEOGRAPHER: The time is 9:25 a.m.</p> <p>16 We're going off the record.</p> <p>17 (Pause in the proceedings.)</p> <p>18 THE VIDEOGRAPHER: The time is 9:27 a.m.</p> <p>19 and we are back on the record.</p> <p>20 (Diette Exhibit No. 4 was marked</p> <p>21 for identification.)</p> <p>22 MS. PARFITT: Ready?</p> <p>23 THE VIDEOGRAPHER: Oh, yeah, we're on.</p> <p>24 MS. PARFITT: Okay. Thank you.</p> <p>25 BY MS. PARFITT:</p>
<p style="text-align: right;">Page 43</p> <p>1 have a disconnect here. Are you referring to the</p> <p>2 7 of the reliance list?</p> <p>3 MS. PARFITT: I am. I'm sorry about</p> <p>4 that.</p> <p>5 THE WITNESS: Oh. Is it 7 of the -- the</p> <p>6 exhibit you gave me or is it part of what's my</p> <p>7 reliance list that's attached to my report?</p> <p>8 BY MS. PARFITT:</p> <p>9 Q What I have is your reliance list, and</p> <p>10 it's page 7 of your reliance list.</p> <p>11 A I got you.</p> <p>12 MS. BROWN: Got that. Okay.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q And I believe you have three Purdie --</p> <p>15 excuse me, two Purdie cites, one 2003 and one</p> <p>16 1995. Correct?</p> <p>17 A That's correct.</p> <p>18 Q Okay. Did you indeed review the Purdie</p> <p>19 article for purposes of your testimony here today?</p> <p>20 MS. BROWN: Objection to the form.</p> <p>21 THE WITNESS: I don't think I reviewed</p> <p>22 it for the purpose of my testimony, but I -- I</p> <p>23 included it because it's something I reviewed at</p> <p>24 some point prior to preparing the report.</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 45</p> <p>1 Q Dr. Diette, let me show you what's been</p> <p>2 marked as Plaintiffs' Exhibit No. 4 to the Diette</p> <p>3 deposition, and I'll represent to you -- sorry --</p> <p>4 I'll represent to you that this is the --</p> <p>5 MS. BROWN: Thank you.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q -- an article by Dr. Purdie entitled</p> <p>8 "Ovulation and Risk of Epithelial Ovarian Cancer"</p> <p>9 published in the International Journal of Cancer</p> <p>10 in 2003. Do you see that?</p> <p>11 A I do.</p> <p>12 Q All right. If I can direct your</p> <p>13 attention to page 231 of that article.</p> <p>14 MS. PARFITT: Let's put it on the ELMO.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. And, Dr. Diette, I'll put it up</p> <p>17 on the overhead as well. About halfway down --</p> <p>18 there you go -- left-hand column, Dr. Purdie and</p> <p>19 authors state: "Thus, the latency period of more</p> <p>20 advanced malignant epithelial ovarian cancer could</p> <p>21 be estimated to be approximately 30 to 40 years."</p> <p>22 Did I read that correctly?</p> <p>23 A You read it fine.</p> <p>24 Q All right. Do you agree or disagree</p> <p>25 that the latency period of more advanced malignant</p>

12 (Pages 42 to 45)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 46</p> <p>1 epithelial ovarian cancer can be estimated to be 2 approximately 30 to 40 years? 3 A Well, I think, you know -- so there's no 4 way for me to know for sure, right, but could 5 be -- it seems like a pretty safe statement 6 because it could be more, it could be less. 7 It's also an incomplete sentence, right, 8 in the sense that when you talk about the latency, 9 you talk about the latency between a particular 10 kind of exposure. I mean, in this context, right, 11 there may have other -- there may be other ways 12 people use that word, but in this context it's the 13 time from the exposure to the development of the 14 disease. So there's no exposure mentioned in that 15 sentence, so it's a little -- a little loose, you 16 know. 17 MS. PARFITT: All right. Move to strike 18 that last part of your statement. 19 BY MS. PARFITT: 20 Q Okay. Dr. Diette, do you agree that 21 it's imperative to develop public health programs 22 that either reduce the incidence or detect ovarian 23 cancer at an earlier stage? 24 A It's an agreeable statement. 25 Q Okay. In developing public health</p>	<p style="text-align: right;">Page 48</p> <p>1 BY MS. PARFITT: 2 Q Sure. And, you know, that might be -- 3 that might be fair. So let me go for a third try. 4 Okay? 5 A Okay. 6 Q Do you develop public health programs 7 for Johns Hopkins? 8 A I'm trying to think -- I would say 9 generally, no. I mean -- 10 Q It's not part of your role. 11 MS. BROWN: Well, let him finish. I'm 12 sorry. 13 THE WITNESS: But I don't know -- I 14 mean, I don't know what -- I mean that's a pretty 15 broad topic, which is what's a public health 16 program. So I'm just thinking like, for example, 17 you know, I've done work with asthma in -- in the 18 inner city nearby. 19 BY MS. PARFITT: 20 Q Correct. 21 A And we certainly have a program, you 22 know, that deals with -- with that. I wouldn't 23 say I've developed it as a public health program 24 per se but as a -- as a research program. But, 25 you know, where public health starts and stops,</p>
<p style="text-align: right;">Page 47</p> <p>1 programs, does -- in order to set up preventive 2 programs, detection programs, does that include 3 getting information about whatever the putative 4 exposure may be to individuals who may be 5 susceptible to them? 6 MS. BROWN: Objection to the form of the 7 question. 8 MS. PARFITT: Let me strike that 9 question completely. It was a lousy question. 10 All right. 11 THE WITNESS: It was -- 12 MS. PARFITT: And I'm going to agree 13 with counsel on that. How about that? 14 THE WITNESS: It was below average. It 15 wasn't lousy. 16 BY MS. PARFITT: 17 Q Sure. Okay. 18 When one develops a public health 19 program in order to alert individuals about a 20 public health issue, what is the manner, let's 21 say, in your department to do that? 22 MS. BROWN: Objection to the form of the 23 question. 24 THE WITNESS: I'm not sure what we're 25 talking about. I mean --</p>	<p style="text-align: right;">Page 49</p> <p>1 I'm not exactly sure. 2 Q Fair enough. 3 All right. Talcum powder products are 4 widely available, correct? 5 MS. BROWN: Objection to the form of the 6 question. 7 THE WITNESS: You know, they -- I 8 guess -- so anyway, I'm an epidemiologist, so when 9 somebody says something like that, like when you 10 say it, like I'm thinking like to whom or for whom 11 or where or when or something. I mean there's 12 sort of like a time and place and something else 13 more to that. I think it's a common product, but 14 I don't -- I don't know what it means to be widely 15 available. 16 BY MS. PARFITT: 17 Q All right. Did you ever ask Johnson & 18 Johnson or their attorneys a question with regard 19 to how many bottles of Johnson & Johnson's Baby 20 Powder they distribute each year in America? 21 MS. BROWN: Objection to the form of the 22 question. 23 THE WITNESS: I have not asked that. 24 BY MS. PARFITT: 25 Q Okay. Similarly, have you ever asked</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 50</p> <p>1 Johnson & Johnson how many bottles of their Shower</p> <p>2 to Shower they distributed?</p> <p>3 A No.</p> <p>4 MS. BROWN: Same objection.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q All right. Have you ever purchased</p> <p>7 talcum powder products?</p> <p>8 A I -- I don't do the shopping. You know,</p> <p>9 and so it -- like, I don't -- I don't buy anything</p> <p>10 at the store.</p> <p>11 Q Okay. Fair enough.</p> <p>12 Are you aware of the fact that Johnson &</p> <p>13 Johnson continues to sell their talcum powder</p> <p>14 products?</p> <p>15 A I wasn't aware that they weren't. I</p> <p>16 mean, I don't know where I would get that from,</p> <p>17 but as best as I can tell.</p> <p>18 Q All right. Have you ever looked at the</p> <p>19 back of a Johnson & Johnson's Baby Powder product</p> <p>20 to see what it says about its usage --</p> <p>21 MS. BROWN: Objection.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q -- and direction?</p> <p>24 MS. BROWN: Excuse me. Objection to the</p> <p>25 form of the question.</p>	<p style="text-align: right;">Page 52</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Okay. Let me show you what I'll have</p> <p>3 marked as Exhibit --</p> <p>4 MS. PARFITT: Where are we?</p> <p>5 MR. ROSEN: Five.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q -- 5. And I'll represent to you,</p> <p>8 Dr. Diette, that this is a bottle of Johnson's</p> <p>9 Baby Powder, and we'll have it marked as Exhibit</p> <p>10 No. 5.</p> <p>11 (Diette Exhibit No. 5 was marked</p> <p>12 for identification.)</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Now, my understanding is that you are</p> <p>15 trained, skilled, and have expertise in pulmonary</p> <p>16 medicine, correct?</p> <p>17 A Among other things.</p> <p>18 Q And I didn't mean to limit your</p> <p>19 expertise. Okay.</p> <p>20 If you will, let me show -- pass to you</p> <p>21 the Exhibit No. 5, and ask that you turn it to the</p> <p>22 back. Look at the bottle.</p> <p>23 MS. BROWN: Counsel, before he does</p> <p>24 that, will you put -- represent on the record</p> <p>25 where this bottle that you've marked as Exhibit 5</p>
<p style="text-align: right;">Page 51</p> <p>1 THE WITNESS: It's possible that I have</p> <p>2 years ago, but not -- not recently.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q Nothing recent.</p> <p>5 How about since you were retained by</p> <p>6 Johnson & Johnson as an expert, have you ever</p> <p>7 looked at a bottle of Johnson & Johnson's Baby</p> <p>8 Powder or Shower to Shower?</p> <p>9 MS. BROWN: Same objection.</p> <p>10 THE WITNESS: No. I've seen pictures,</p> <p>11 you know, in different settings, but I haven't --</p> <p>12 I haven't seen a bottle of it or looked at it.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Okay. Do you have an understanding as</p> <p>15 to whether or not Johnson & Johnson's Baby Powder</p> <p>16 or the Shower to Shower contains a warning on its</p> <p>17 product against use in the genital area to avoid</p> <p>18 ovarian cancer?</p> <p>19 MS. BROWN: Objection to the form.</p> <p>20 THE WITNESS: I don't know whether they</p> <p>21 do or don't. But I'm also not, you know, skilled</p> <p>22 in warnings. So I wouldn't -- I mean, I -- even</p> <p>23 if it said something, I wouldn't necessarily be</p> <p>24 the person to tell you whether that's a warning or</p> <p>25 not.</p>	<p style="text-align: right;">Page 53</p> <p>1 came from and when it was purchased and by whom?</p> <p>2 MS. PARFITT: Counsel, I'm asking the</p> <p>3 questions. I just represent that it is a bottle</p> <p>4 of Johnson & Johnson's Baby Powder purchased from</p> <p>5 a store.</p> <p>6 MS. MILLER: Michelle, I'm trying</p> <p>7 really, really hard not to say a word today.</p> <p>8 MS. PARFITT: Sure.</p> <p>9 MS. MILLER: I know that I'll annoy</p> <p>10 you --</p> <p>11 MS. PARFITT: Oh, no, you're not.</p> <p>12 MS. MILLER: -- but it's not Johnson &</p> <p>13 Johnson's Baby Powder. It's Johnson's Baby</p> <p>14 Powder, and you keep saying it wrong.</p> <p>15 MS. PARFITT: That's fine. That's fine.</p> <p>16 MS. MILLER: And I think for the record,</p> <p>17 it's important. It's a product by JJCI, as you</p> <p>18 know.</p> <p>19 MS. PARFITT: That's fine.</p> <p>20 MS. MILLER: So we just need</p> <p>21 Johnson's --</p> <p>22 MS. PARFITT: Okay. And why don't we --</p> <p>23 whenever I -- since I'm sure I won't remember all</p> <p>24 that, why don't we just reflect for the record</p> <p>25 that when I say Johnson & Johnson's Baby Powder,</p>

14 (Pages 50 to 53)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 54</p> <p>1 that it's Johnson's Baby Powder. Okay?</p> <p>2 MS. BROWN: And just to get my -- my</p> <p>3 objection on the record to what you marked as</p> <p>4 Exhibit 5, we have no representation of when this</p> <p>5 was bought, by whom it was bought.</p> <p>6 With that, Dr. Diette, here is</p> <p>7 Exhibit 5.</p> <p>8 MS. PARFITT: Thank you.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q All right, Dr. Diette, look at the back</p> <p>11 of that. Do you see that there's a little picture</p> <p>12 that looks like a little baby with an X on it?</p> <p>13 A I do.</p> <p>14 MS. BROWN: Objection to the form.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. Okay. What does that say on the</p> <p>17 back of the product?</p> <p>18 A It says: "Warning: Keep powder away</p> <p>19 from child's face to avoid inhalation, which can</p> <p>20 cause breathing problems. Avoid contact with the</p> <p>21 eyes. For external use only."</p> <p>22 Q Okay. And at the bottom of that</p> <p>23 product, does it happen to say what's contained in</p> <p>24 it?</p> <p>25 MS. BROWN: Objection to the form of the</p>	<p style="text-align: right;">Page 56</p> <p>1 expert work for them?</p> <p>2 MS. BROWN: Objection to the form.</p> <p>3 THE WITNESS: I believe so, yeah.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Okay. Had you ever worked for Johnson &</p> <p>6 Johnson or any of their entities prior to 2017 in</p> <p>7 any type of litigation?</p> <p>8 MS. BROWN: Same objection.</p> <p>9 THE WITNESS: I -- I don't think so. I</p> <p>10 would say almost certainly no.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Okay. Since your retention in 2017, did</p> <p>13 Johnson & Johnson, their medical department, their</p> <p>14 regulatory department, science department, ever</p> <p>15 ask that you take a look at the back of the</p> <p>16 product, Johnson's Baby Powder, for purposes of</p> <p>17 giving an opinion as to what scientific and</p> <p>18 medical information should be on that product?</p> <p>19 MS. BROWN: Objection to the form of the</p> <p>20 question.</p> <p>21 THE WITNESS: I would be the wrong kind</p> <p>22 of expert for that. I mean I'm not a warnings</p> <p>23 expert, so it wouldn't -- wouldn't make any sense</p> <p>24 for anybody to ask me that question.</p> <p>25 BY MS. PARFITT:</p>
<p style="text-align: right;">Page 55</p> <p>1 question.</p> <p>2 THE WITNESS: It has a line called</p> <p>3 "Ingredients," which says "Talc, fragrance."</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Okay. Dr. Diette, you've been retained</p> <p>6 by Johnson & Johnson since when, for purposes of</p> <p>7 the ovarian cancer cases?</p> <p>8 MS. BROWN: Objection. Form. Do you</p> <p>9 mean the Ingham case or do you mean the MDL?</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Well, let me clarify.</p> <p>12 When were you first -- it's a fair</p> <p>13 question -- when were you first retained by</p> <p>14 Johnson & Johnson to represent them in either</p> <p>15 mesothelioma cases or ovarian cancer cases?</p> <p>16 MS. BROWN: Objection to the form. He</p> <p>17 is an expert witness on behalf of Johnson &</p> <p>18 Johnson. He is not here representing anyone.</p> <p>19 THE WITNESS: That honestly sounds like</p> <p>20 Ms. Brown's job, I mean, but -- but I guess to try</p> <p>21 to answer your question, the -- I was first asked</p> <p>22 to review the epidemiology in 2017.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. And was that the first time that</p> <p>25 Johnson & Johnson had asked you to provide any</p>	<p style="text-align: right;">Page 57</p> <p>1 Q I'm not asking you about the adequacy of</p> <p>2 the warning. I'm asking you about your expertise</p> <p>3 as a pulmonary medicine expert with regard to</p> <p>4 inhalation issues as contained on the back of that</p> <p>5 product.</p> <p>6 A It still wouldn't make any sense. I</p> <p>7 wouldn't be the person to ask that to.</p> <p>8 Q Dr. Diette, whether or not it makes</p> <p>9 sense to you or not, my question is simply this:</p> <p>10 Yes or no, has Johnson & Johnson asked your</p> <p>11 opinion at any point in time with regard to what</p> <p>12 kind of scientific and medical information should</p> <p>13 be on the back of their powder?</p> <p>14 MS. BROWN: Objection. Answered three</p> <p>15 times.</p> <p>16 THE WITNESS: They and everybody else in</p> <p>17 the world has not asked me to do anything like</p> <p>18 that ever.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Okay. And they, Johnson & Johnson, has</p> <p>21 never asked you to -- your opinion with regard to</p> <p>22 the inhalation warning; is that correct?</p> <p>23 MS. BROWN: Objection. Counsel, we've</p> <p>24 been through this like six times.</p> <p>25 THE WITNESS: I think it's the same</p>

15 (Pages 54 to 57)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 58</p> <p>1 warning we're talking about, right?</p> <p>2 BY MS. PARFITT:</p> <p>3 Q The one that's on the back, yeah.</p> <p>4 A So it's still -- still the same.</p> <p>5 Q Okay. And just for the record, we're</p> <p>6 going to put on the ELMO -- thank you. Just go</p> <p>7 ahead and see if we can get that on there. Okay.</p> <p>8 (Counsel conferring.)</p> <p>9 BY MS. PARFITT:</p> <p>10 Q And again, for clarity of the record,</p> <p>11 what we've been talking about is on -- the child</p> <p>12 with the X over the nose and mouth and the warning</p> <p>13 that is to the far right, correct?</p> <p>14 MS. BROWN: Objection to the form.</p> <p>15 THE WITNESS: I was with you until you</p> <p>16 said "to the far right." I don't know --</p> <p>17 BY MS. PARFITT:</p> <p>18 Q To the right of the baby.</p> <p>19 A Oh, I see. I'm sorry.</p> <p>20 Q Yeah, no problem.</p> <p>21 A Yeah. No, that's --</p> <p>22 Q That's what we're talking about.</p> <p>23 A It's to the right of the baby, yeah.</p> <p>24 Q Okay. Very good. All right.</p> <p>25 Dr. Diette, as a scientist and a</p>	<p style="text-align: right;">Page 60</p> <p>1 you have who have a different opinion with regard</p> <p>2 to the causality of talcum powder products and</p> <p>3 ovarian cancer?</p> <p>4 MS. BROWN: Objection to the form.</p> <p>5 THE WITNESS: Well, I've seen like, for</p> <p>6 example, the expert reports that are -- that are</p> <p>7 part of this matter and some of the deposition</p> <p>8 transcripts. So -- so, yes, I mean I've seen what</p> <p>9 they've said.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Okay. And from your review of those</p> <p>12 expert reports, do you understand that many of</p> <p>13 those scientists and epidemiologists are</p> <p>14 individuals who treat women who have been</p> <p>15 diagnosed for ovarian cancer? Do you understand</p> <p>16 that?</p> <p>17 MS. BROWN: Objection. Lacks</p> <p>18 foundation, calls for speculation.</p> <p>19 THE WITNESS: So I saw that there were</p> <p>20 some GYN oncologists involved. I don't remember</p> <p>21 the count of them, but I saw there were GYN</p> <p>22 oncologists, both on the defense and the</p> <p>23 plaintiffs' side.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. And the GYN oncologists would be</p>
<p style="text-align: right;">Page 59</p> <p>1 clinician, do you have a belief or opinion that</p> <p>2 women should be informed of even a potential risk</p> <p>3 of using talcum powder products on their genital</p> <p>4 area?</p> <p>5 MS. BROWN: Objection.</p> <p>6 THE WITNESS: Not based on what I've</p> <p>7 reviewed.</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Okay. Is it your opinion that there is</p> <p>10 no risk of ovarian cancer from the long-term use</p> <p>11 of talcum powder products?</p> <p>12 MS. BROWN: Objection. Form.</p> <p>13 THE WITNESS: I -- I don't see evidence</p> <p>14 that there's a -- so I'm an epidemiologist, so the</p> <p>15 way I talk about things might be a little</p> <p>16 different than the way you're asking it. But</p> <p>17 there's not sufficient evidence to say that it's a</p> <p>18 cause of ovarian cancer.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Okay. And we'll talk about that in a</p> <p>21 little bit.</p> <p>22 Do you have an understanding as to</p> <p>23 whether there are other scientists and</p> <p>24 epidemiologists who have reviewed the same</p> <p>25 scientific and epidemiological information that</p>	<p style="text-align: right;">Page 61</p> <p>1 the practice of medicine that treats women for</p> <p>2 reproductive diseases and cancers like ovarian</p> <p>3 cancer, correct?</p> <p>4 MS. BROWN: Objection.</p> <p>5 THE WITNESS: They -- they would be the</p> <p>6 ones that provide treatment for the GYN cancers.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Okay. You're a pulmonologist, correct?</p> <p>9 A I am.</p> <p>10 Q All right.</p> <p>11 A And again, among other things.</p> <p>12 Q Understood.</p> <p>13 MS. BROWN: Let him finish, Counsel, he</p> <p>14 wasn't done.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q My -- it's a simple question, are you a</p> <p>17 pulmonologist?</p> <p>18 MS. BROWN: Wait, but he was still</p> <p>19 answering. You cut him off. Let him finish.</p> <p>20 MS. PARFITT: Doc -- I withdraw that</p> <p>21 question.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Are you a pulmonologist?</p> <p>24 A I am a pulmonologist.</p> <p>25 Q All right. As a pulmonologist, do you</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 62</p> <p>1 treat and care for women -- treat and care and</p> <p>2 provide gynecological and oncological care to</p> <p>3 women who have been diagnosed with ovarian cancer?</p> <p>4 MS. BROWN: Objection to the form.</p> <p>5 THE WITNESS: Mostly, no, although</p> <p>6 I'll just -- there was a lot in your question,</p> <p>7 right, so that --</p> <p>8 BY MS. PARFITT:</p> <p>9 Q You want me to break it down?</p> <p>10 MS. BROWN: Let him finish first, and</p> <p>11 then you can follow up. He has to be allowed to</p> <p>12 answer your question.</p> <p>13 MS. PARFITT: Oh, absolutely, but if</p> <p>14 it's unclear -- that was one of the --</p> <p>15 THE WITNESS: I didn't say it was</p> <p>16 unclear. I just said it -- it's complicated, so</p> <p>17 there's more than -- it's not just a simple</p> <p>18 answer.</p> <p>19 MS. PARFITT: Let me withdraw the</p> <p>20 question.</p> <p>21 MS. BROWN: Wait, Counsel, he's not</p> <p>22 done.</p> <p>23 Dr. Diette, you finish your answer, and</p> <p>24 then counsel, of course, will follow up.</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 64</p> <p>1 that.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Okay. What is your understanding of the</p> <p>4 testing that's been performed by Johnson & Johnson</p> <p>5 on their talcum powder products?</p> <p>6 MS. BROWN: Objection. That's overly</p> <p>7 broad.</p> <p>8 THE WITNESS: Well, like the type --</p> <p>9 MS. BROWN: You mean internal, external,</p> <p>10 third party, FDA?</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Do you understand the question?</p> <p>13 A I was actually going to say something</p> <p>14 similar to what Ms. Brown said but less</p> <p>15 sophisticated.</p> <p>16 I mean what I meant was, were you asking</p> <p>17 about like the kinds of tests that were done or --</p> <p>18 or things of that sort? I just -- I just know,</p> <p>19 generally speaking, that there has been testing</p> <p>20 done.</p> <p>21 Q Sure. Let me make it very simple.</p> <p>22 Are you aware of studies -- strike that.</p> <p>23 Have you seen studies done by Johnson &</p> <p>24 Johnson that tested and evaluated their talcum</p> <p>25 powder products for the presence of asbestos?</p>
<p style="text-align: right;">Page 63</p> <p>1 Q Okay. Go ahead.</p> <p>2 A Thank you.</p> <p>3 Q Sure.</p> <p>4 A So, you know, I wouldn't be the person</p> <p>5 who prescribes chemotherapy or provides the</p> <p>6 surgery. Part of my work is as an intensive care</p> <p>7 doc in the oncology center, and so I'll see people</p> <p>8 with every kind of cancer possible and provide</p> <p>9 some of the care to them.</p> <p>10 I see people in my clinic that have, you</p> <p>11 know, pulmonary consequences of some of their</p> <p>12 treatment for ovarian cancer. And so it's -- it's</p> <p>13 not a straightforward yes or no that I do or don't</p> <p>14 participate, but I don't do the -- the GYN onc</p> <p>15 part of that care.</p> <p>16 Q All right. Have you in your practice of</p> <p>17 pulmonary medicine ever diagnosed a woman with</p> <p>18 ovarian cancer?</p> <p>19 A I can't remember ever doing that.</p> <p>20 Q All right. Now, Dr. Diette, are you</p> <p>21 aware of whether or not -- strike that.</p> <p>22 Are you aware that Johnson & Johnson has</p> <p>23 tested their talcum powder products?</p> <p>24 MS. BROWN: Objection to the form.</p> <p>25 THE WITNESS: I have some awareness of</p>	<p style="text-align: right;">Page 65</p> <p>1 MS. BROWN: Same objection.</p> <p>2 THE WITNESS: I don't think I've seen</p> <p>3 anything from Johnson & Johnson, per se.</p> <p>4 Is that what -- is that what you're</p> <p>5 referring to?</p> <p>6 BY MS. PARFITT:</p> <p>7 Q That is, yes.</p> <p>8 A Okay. Then not -- not that I'm aware</p> <p>9 of.</p> <p>10 Q All right. I saw where you looked at</p> <p>11 the depositions of Drs. Longo and Rigler.</p> <p>12 MS. BROWN: Objection to the form.</p> <p>13 THE WITNESS: Is that in a different</p> <p>14 case?</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Good question. You have their</p> <p>17 depositions listed as part of the materials</p> <p>18 reviewed and relied upon. Have you read those?</p> <p>19 MS. BROWN: Objection.</p> <p>20 If you want to refresh yourself on your</p> <p>21 reliance list, I'm sure counsel will point you to</p> <p>22 the page.</p> <p>23 MS. PARFITT: Absolutely.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Let me direct you to -- just bear with</p>

17 (Pages 62 to 65)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 66</p> <p>1 me one second. I apologize here.</p> <p>2 Okay. It's -- your reference materials</p> <p>3 reviewed and considered start on -- or in</p> <p>4 Appendix B of your report.</p> <p>5 Do you see that?</p> <p>6 A I don't see Longo and Rigler.</p> <p>7 Q Okay. At the very top, it has</p> <p>8 "Materials Reviewed and Considered by Gregory</p> <p>9 Diette," and the second item under "Expert</p> <p>10 References" says "Expert report of William Longo</p> <p>11 and Mark Rigler."</p> <p>12 Do you see that?</p> <p>13 A Oh, I do, yeah. So I see Longo, and I'm</p> <p>14 just --</p> <p>15 Q Do you see Rigler? He's right after</p> <p>16 that. It says William --</p> <p>17 A Oh, got you.</p> <p>18 MS. BROWN: Counsel, these are reports.</p> <p>19 I thought your question was about a deposition.</p> <p>20 MS. PARFITT: That's a -- that's a fair</p> <p>21 objection.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Have you read the expert report of</p> <p>24 William Longo and Mark Rigler?</p> <p>25 A So, because I see there's a date on it</p>	<p style="text-align: right;">Page 68</p> <p>1 Q But my question --</p> <p>2 MS. PARFITT: And noted.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q My question to you is, sitting here</p> <p>5 today, what I need to know -- and if it's no,</p> <p>6 that's a fine answer. If it's yes, that's a fine</p> <p>7 answer.</p> <p>8 Have you read the expert report of</p> <p>9 Drs. Longo and Rigler dated November 14, 2018?</p> <p>10 If you did, I'm not -- I'm not --</p> <p>11 MS. BROWN: Objection to the form. I</p> <p>12 think he answered that.</p> <p>13 Counsel, I think what you're really</p> <p>14 after is, is he relying on that to form his</p> <p>15 opinion.</p> <p>16 MS. PARFITT: Actually, I'm not. That's</p> <p>17 a good question, but I'm not asking that.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Did you read the report?</p> <p>20 A So I -- I'm not sure if I read this one</p> <p>21 with this particular date.</p> <p>22 Q That's fine.</p> <p>23 A But wait, wait, wait. But, you know, if</p> <p>24 it's on here, because that's what it reminds me</p> <p>25 of, I don't have a specific memory for this matter</p>
<p style="text-align: right;">Page 67</p> <p>1 of November 14th, 2018 --</p> <p>2 Q Correct.</p> <p>3 A -- I know I've seen at least a few of</p> <p>4 Dr. Longo's reports, and I -- I think they're the</p> <p>5 same over and over again. So I -- if I -- if I'm</p> <p>6 not mistaken, I don't think I would have reread it</p> <p>7 like, you know, specifically for this matter if it</p> <p>8 looked the same as others. I think I probably</p> <p>9 just like flipped through it to see what it was --</p> <p>10 was there generally.</p> <p>11 Q All right. So I understand your answer,</p> <p>12 is your testimony that you don't recall</p> <p>13 specifically reviewing the November 14th, 2018</p> <p>14 expert report of Dr. Longo's and Rigler?</p> <p>15 MS. BROWN: Objection to the form,</p> <p>16 misstates his testimony.</p> <p>17 MS. MILLER: So can I say something?</p> <p>18 Because I was involved in that, I think that every</p> <p>19 item with respect to litigation that we sent to</p> <p>20 Dr. Diette, which would have been depositions or</p> <p>21 expert reports, was put on the list because it was</p> <p>22 sent to him. I --</p> <p>23 MS. PARFITT: Oh, and I understand. I</p> <p>24 appreciate that.</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 69</p> <p>1 because I've been reading some of these things for</p> <p>2 other matters as well. So I -- you know, I don't</p> <p>3 remember whether -- whether I read that particular</p> <p>4 one, but if it looked like other ones that I had,</p> <p>5 I would have, you know, touched it, opened it,</p> <p>6 looked to see what was in there, and then not read</p> <p>7 every word of it. But I don't remember which way</p> <p>8 it worked.</p> <p>9 Q Sitting here today, are you able to tell</p> <p>10 me the results of Dr. Longo and Rigler's testing</p> <p>11 of Johnson & Johnson's talcum powder products as</p> <p>12 reflected in their expert reports of November 14,</p> <p>13 2018?</p> <p>14 MS. BROWN: Objection to the form.</p> <p>15 THE WITNESS: I don't remember the</p> <p>16 details, but I could -- I could look that up and</p> <p>17 pull -- pull out what I saw.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Did you mark it?</p> <p>20 MS. BROWN: Objection to the form.</p> <p>21 THE WITNESS: Oh, you mean like with</p> <p>22 highlights?</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Mm-hmm. Yes, with highlights.</p> <p>25 A Sorry. I thought you were talking about</p>

18 (Pages 66 to 69)

Gregory B. Diette, M.D.

Page 70	Page 72
<p>1 marking exhibits, I'm thinking like that's not</p> <p>2 what I do. So, no -- so I don't know.</p> <p>3 Q All right.</p> <p>4 A This particular one, I might have</p> <p>5 highlighted an earlier one or -- or even not. And</p> <p>6 the only reason I say that is because his reports</p> <p>7 tend to have an awful lot of like sort of like</p> <p>8 testing data in the -- in the back of it, and</p> <p>9 there's not a lot of like words, you know, to</p> <p>10 read. So there's not a lot to really highlight</p> <p>11 for me. I mean, you know what I mean? It's kind</p> <p>12 of succinct in terms of like the opinion part, and</p> <p>13 then there's a whole bunch of scientific stuff</p> <p>14 that's somebody else's field.</p> <p>15 Q Understood. And I think what I'm</p> <p>16 getting at is for purposes of the opinions you are</p> <p>17 presenting to the jury in this case, are you</p> <p>18 relying on the test results of Dr. Longo's and</p> <p>19 Rigler's that are contained in not only their</p> <p>20 November 14th -- contained in their November 14th,</p> <p>21 2018 report?</p> <p>22 MS. BROWN: And objection.</p> <p>23 Counsel, you said "jury." I assume you</p> <p>24 mean for purposes of this Daubert hearing, is he</p> <p>25 relying on the Rigler and Longo report of</p>	<p>1 wouldn't say I rely on it in the sense that it's</p> <p>2 an underpinning of an opinion or something like</p> <p>3 that.</p> <p>4 Q All right. Do you have an understanding</p> <p>5 then that Drs. Longo and Rigler found the presence</p> <p>6 of asbestos in the talcum powder products they</p> <p>7 tested?</p> <p>8 MS. BROWN: Objection to the form of the</p> <p>9 question.</p> <p>10 THE WITNESS: My -- my understanding is</p> <p>11 they say they found it, but I don't -- I don't</p> <p>12 know the fact of whether they found it or not.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Okay. Did -- from your read or not read</p> <p>15 of Drs. Longo and Rigler -- strike that.</p> <p>16 Did Drs. Longo and Rigler find</p> <p>17 asbestiform fibers in the tests done of Johnson &</p> <p>18 Johnson's product, talcum powder products?</p> <p>19 MS. BROWN: Objection to the form.</p> <p>20 THE WITNESS: I guess I need to know</p> <p>21 what we're talking about if you say "asbestiform</p> <p>22 fibers," because I thought your question before</p> <p>23 was asbestos.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q It was.</p>
Page 71	Page 73
<p>1 November 14th, 2018.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q For purposes of the opinions that you</p> <p>4 have provided in your expert report and I assume</p> <p>5 will present to Judge Wolfson sometime in July,</p> <p>6 are you relying on the information that's</p> <p>7 contained in the expert report of Dr. Longo and</p> <p>8 Rigler, November 14, 2018?</p> <p>9 A I wouldn't use the word "rely." I would</p> <p>10 say aware of, but not -- I'm not relying on it.</p> <p>11 Q And let me explore that, because this is</p> <p>12 the only time I will have a chance to talk to you</p> <p>13 before that Daubert hearing.</p> <p>14 A Sure.</p> <p>15 Q Are you, for purposes of your opinion</p> <p>16 that you're sharing -- will share with me today</p> <p>17 and will share with the court in July, relying on</p> <p>18 any of the test results of Drs. Longo and Rigler</p> <p>19 contained in their reports of November 14, 2018?</p> <p>20 A Yeah, I think the way I said it is</p> <p>21 exactly right, because to me "rely on" has some --</p> <p>22 there's some legal connotation for that, right.</p> <p>23 And so it doesn't -- it doesn't inform</p> <p>24 my opinion, but I'm aware of what his general</p> <p>25 position has been. And so -- but I don't -- I</p>	<p>1 A And are you expecting me to -- to say</p> <p>2 that that's two different things, or is it just</p> <p>3 another way of you trying to ask the same</p> <p>4 question?</p> <p>5 Q How do you define "asbestiform fibers"?</p> <p>6 MR. LOCKE: Objection.</p> <p>7 MS. BROWN: Objection to the form of the</p> <p>8 question.</p> <p>9 THE WITNESS: Well, I -- I understand</p> <p>10 some the terminology, but I'm not a mineralogist.</p> <p>11 Right. So I -- I can tell you -- I think I have</p> <p>12 to diverge a little bit to answer your question,</p> <p>13 if I can, just to say that -- unless you don't</p> <p>14 want me to. Feel free to --</p> <p>15 MS. BROWN: No, you should answer the</p> <p>16 question --</p> <p>17 THE WITNESS: Okay.</p> <p>18 MS. BROWN: -- as honestly and</p> <p>19 truthfully and accurately as you can.</p> <p>20 THE WITNESS: Because asbestos -- I</p> <p>21 mean, asbestos in terms of at least its</p> <p>22 commercial, you know, forms is something that's</p> <p>23 in -- that's in asbestiform fiber, right. It's in</p> <p>24 asbestiform habit. And so I think, you know, for</p> <p>25 me to understand the minerals, when we're talking</p>

Gregory B. Diette, M.D.

Page 74	Page 76
<p>1 about asbestos, we're talking about a particular</p> <p>2 kind of mineral that's in a particular form or</p> <p>3 habit.</p> <p>4 And so I -- I think when you're talking</p> <p>5 about an asbestiform fiber, there's some</p> <p>6 redundancy there in a way, right, which is that</p> <p>7 that's a description that you could apply to</p> <p>8 something that other people would call asbestos.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q All right. Fine. Thank you.</p> <p>11 Has Johnson & Johnson provided you with</p> <p>12 any testing that they performed on their product?</p> <p>13 MS. BROWN: Objection.</p> <p>14 BY MS. PARFITT:</p> <p>15 Q Shower to Shower or Johnson's Baby</p> <p>16 Powder.</p> <p>17 MS. BROWN: Objection.</p> <p>18 THE WITNESS: I don't think I have seen</p> <p>19 anything.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Did you ever ask Johnson & Johnson to</p> <p>22 see any of the testing that they performed on</p> <p>23 their own talcum powder products?</p> <p>24 MS. BROWN: Objection. Asked and</p> <p>25 answered.</p>	<p>1 would not alter your analysis, and I assume</p> <p>2 opinions, with regard to talcum powder products</p> <p>3 causing ovarian cancer.</p> <p>4 A That's in my report?</p> <p>5 Q Yes.</p> <p>6 A Can we flip to that?</p> <p>7 Q Sure. Why don't you go to page 3.</p> <p>8 And if I may, it's at the bottom,</p> <p>9 paragraph 6.</p> <p>10 A I'm with you, yeah.</p> <p>11 Q Okay. And it says: "To the extent</p> <p>12 plaintiffs' expert opined that asbestos is an</p> <p>13 accessory mineral present in cosmetic talc that</p> <p>14 causes ovarian cancer, this theory would not alter</p> <p>15 the analysis because the existing epidemiological</p> <p>16 literature regarding talc use would</p> <p>17 necessarily" --</p> <p>18 MS. BROWN: You're reading it --</p> <p>19 MS. PARFITT: Beg your pardon?</p> <p>20 MS. BROWN: You read it wrong. Perineal</p> <p>21 talc use.</p> <p>22 MS. PARFITT: Oh, I'm sorry. Perineal.</p> <p>23 Thank you.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q -- "perineal talc use would necessarily</p>
Page 75	Page 77
<p>1 THE WITNESS: I have not.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Okay. Dr. Diette, are you aware that</p> <p>4 there are generic talcum powder products being</p> <p>5 sold in the marketplace today that contain an</p> <p>6 ovarian cancer warning for individuals who use it</p> <p>7 in their genital area?</p> <p>8 MS. BROWN: Objection to the form --</p> <p>9 THE WITNESS: I don't --</p> <p>10 MS. BROWN: -- lacks foundation, calls</p> <p>11 for speculation.</p> <p>12 THE WITNESS: I don't know one way or</p> <p>13 the other.</p> <p>14 BY MS. PARFITT:</p> <p>15 Q Okay. Has Johnson & Johnson shared that</p> <p>16 information with you?</p> <p>17 MS. BROWN: Same objections.</p> <p>18 THE WITNESS: Well, if they had, I'd be</p> <p>19 aware of it, right? I mean --</p> <p>20 BY MS. PARFITT:</p> <p>21 Q I would think.</p> <p>22 A Yeah. So it has to be no. Yeah.</p> <p>23 Q Okay. You state in your -- you state in</p> <p>24 your expert report that the presence of asbestos</p> <p>25 as an accessory mineral present in cosmetic talc</p>	<p>1 account for the presence of any asbestos in the</p> <p>2 products used in both studies."</p> <p>3 Did I now read that correctly, with</p> <p>4 counsel's correction?</p> <p>5 A Yeah, you're -- you've got it right now.</p> <p>6 Q Okay. What do you mean by that</p> <p>7 statement?</p> <p>8 A So what I -- what I mean generally is</p> <p>9 that I've reviewed the -- what I think is the</p> <p>10 whole epidemiology on the -- on the topic, and the</p> <p>11 studies themselves don't break down or don't do</p> <p>12 analyses of what the talcum powder is or what it</p> <p>13 consists of. So to the extent that they've</p> <p>14 studied talcum powder, to me whatever is in talcum</p> <p>15 powder is baked into the epidemiology. And so</p> <p>16 whether asbestos is a fact that it's in there or</p> <p>17 it's a fact that it's not doesn't really change</p> <p>18 how to interpret those studies.</p> <p>19 Is that what you're asking?</p> <p>20 Q Mm-hmm.</p> <p>21 A Okay.</p> <p>22 Q Mm-hmm. Is asbestos a carcinogen?</p> <p>23 A It is.</p> <p>24 Q We're going to come back to that.</p> <p>25 Let me just get on a little bit further</p>

20 (Pages 74 to 77)

Gregory B. Diette, M.D.

Page 78	Page 80
<p>1 on here.</p> <p>2 Are you going to be giving an opinion in</p> <p>3 this case that Johnson & Johnson's talcum powder</p> <p>4 products contain asbestos?</p> <p>5 A No.</p> <p>6 Q You will not?</p> <p>7 A I will not.</p> <p>8 Q Have you made an assumption then for</p> <p>9 purposes of your opinion that Johnson's -- that</p> <p>10 Johnson & Johnson's talcum powder products do not</p> <p>11 contain asbestos?</p> <p>12 A I -- no, I haven't made that assumption.</p> <p>13 I -- I recognize that there's a debate about that,</p> <p>14 and I don't have the expertise to sort through</p> <p>15 what's right about that debate.</p> <p>16 Q All right. Assume that Johnson &</p> <p>17 Johnson's talcum powder products contain asbestos,</p> <p>18 would that place consumers that use the product in</p> <p>19 needless danger?</p> <p>20 MS. BROWN: Objection. Counsel, that's</p> <p>21 an incomplete hypothetical. Is that the same talc</p> <p>22 that's in the epi?</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Can you answer the question?</p> <p>25 MS. PARFITT: And please don't coach the</p>	<p>1 all over the world, right. And so everything</p> <p>2 comes down to dose in any case, right. So for me</p> <p>3 to be concerned about it, you'd have to show me</p> <p>4 that there's a sufficient dose that a person gets</p> <p>5 in order to raise the risk of whatever it is that</p> <p>6 you're talking about.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Let me ask you this: Assume Johnson &</p> <p>9 Johnson's talcum powder products has asbestos in</p> <p>10 it. Are you with me?</p> <p>11 A I am, yeah.</p> <p>12 Q All right. Would it be imprudent for</p> <p>13 Johnson & Johnson to sell its talcum powder</p> <p>14 products to consumers to use it in their</p> <p>15 genital -- on their genital areas?</p> <p>16 MS. BROWN: I object to this line of</p> <p>17 question, Counsel. Are you divorcing your</p> <p>18 hypothetical from the epidemiology he has reviewed</p> <p>19 and is here to talk about?</p> <p>20 MS. PARFITT: He didn't answer the</p> <p>21 question, Counsel. Counsel, if he understands --</p> <p>22 he understood the last question, it's the same.</p> <p>23 Thank you.</p> <p>24 MS. BROWN: I object to the entire line</p> <p>25 of questioning.</p>
Page 79	Page 81
<p>1 witness.</p> <p>2 MS. BROWN: Objection to the incomplete</p> <p>3 hypothetical.</p> <p>4 THE WITNESS: So, anyway, so the</p> <p>5 needless part, I think -- I'm not sure if you need</p> <p>6 that in your question or whether it changes how I</p> <p>7 would answer it. I think the general issue is</p> <p>8 whether or not there's a risk or whether there's a</p> <p>9 danger. And from what I can tell from reading the</p> <p>10 literature, that there's not a risk of -- did you</p> <p>11 say "ovarian cancer" in your question?</p> <p>12 BY MS. PARFITT:</p> <p>13 Q Correct.</p> <p>14 A Yeah, I don't see that there's a -- a</p> <p>15 risk of ovarian cancer from the literature.</p> <p>16 Q Assume for purposes of my question that</p> <p>17 Johnson & Johnson's talcum powder products has</p> <p>18 asbestos in it, would it be imprudent and not</p> <p>19 reasonable for Johnson & Johnson to sell that</p> <p>20 product to its customers, yes or no?</p> <p>21 MS. BROWN: Objection to the incomplete</p> <p>22 hypothetical.</p> <p>23 THE WITNESS: So I think, you know, it</p> <p>24 isn't a yes or no, right? I mean, because it's --</p> <p>25 if you're talking about asbestos, there's asbestos</p>	<p>1 BY MS. PARFITT:</p> <p>2 Q Please.</p> <p>3 A If we're talking about what exists in</p> <p>4 the world right now, I -- I don't see any issue</p> <p>5 with it.</p> <p>6 Q All right. Do you know who</p> <p>7 Dr. Nicholson is?</p> <p>8 A Which -- which Nicholson?</p> <p>9 Q Susan Nicholson.</p> <p>10 A I'm not sure. Is she an expert in --</p> <p>11 Q She's not. She's actually the -- and</p> <p>12 I'll represent to you, the chief medical officer</p> <p>13 for Johnson & Johnson.</p> <p>14 A Oh, I don't know her.</p> <p>15 Q Okay. Let me represent to you that</p> <p>16 Dr. Nicholson, who is a medical officer for</p> <p>17 Johnson & Johnson, was deposed in this case, this</p> <p>18 same case that we're in together, you and I. Are</p> <p>19 you aware of that?</p> <p>20 A Only because you said so.</p> <p>21 Q Okay. And the deposition that was taken</p> <p>22 of Dr. Nicholson was a deposition that was taken</p> <p>23 wherein she -- we call it a 30(b)(6). That means</p> <p>24 she represents the voice of the company that she</p> <p>25 works for. Understand?</p>

21 (Pages 78 to 81)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 82</p> <p>1 MS. BROWN: Objection to the form of the</p> <p>2 question.</p> <p>3 THE WITNESS: I understand what you</p> <p>4 said. I don't know what I -- if I understand what</p> <p>5 that means.</p> <p>6 MS. PARFITT: Okay. All right. Let me</p> <p>7 have marked as Exhibit -- I believe it's</p> <p>8 Exhibit No. 6 that we're on.</p> <p>9 (Diette Exhibit No. 6 was marked</p> <p>10 for identification.)</p> <p>11 MS. BROWN: And, Counsel, if you're</p> <p>12 going to ask him questions about Dr. Nicholson's</p> <p>13 deposition that he has not reviewed, we need to at</p> <p>14 least have a full copy of the deposition here.</p> <p>15 Thanks.</p> <p>16 MS. PARFITT: I believe you have --</p> <p>17 MS. BROWN: And you should take as long</p> <p>18 as you need to review it to answer any questions</p> <p>19 counsel might have.</p> <p>20 MS. PARFITT: Okay. And, Counsel, I'll</p> <p>21 get you that -- I don't have a copy --</p> <p>22 MS. BROWN: We have -- I mean your</p> <p>23 colleague just --</p> <p>24 MS. PARFITT: We have just one. I'm</p> <p>25 just saying we just have one. I don't have one</p>	<p style="text-align: right;">Page 84</p> <p>1 Q Okay. At the top, if I may, it says --</p> <p>2 line 2: "Well" -- and I'll represent to you that</p> <p>3 I was one of the attorneys that took</p> <p>4 Dr. Nicholson's deposition.</p> <p>5 The question is: "Well, if your</p> <p>6 products contain asbestos, would you agree with me</p> <p>7 that that impacts the safety of the product?"</p> <p>8 Answer: "Absolutely, yes."</p> <p>9 Next question: "Would you agree that</p> <p>10 Johnson & Johnson has a zero tolerance policy with</p> <p>11 regard to having asbestos in their talcum powder</p> <p>12 products?"</p> <p>13 The answer: "Yeah, that is correct."</p> <p>14 Next question: "In fact, as a</p> <p>15 representative of the company, it's your position</p> <p>16 that your Johnson & Johnson's talcum powder</p> <p>17 products should not contain asbestos; is that</p> <p>18 correct?"</p> <p>19 "That's correct -- that is correct."</p> <p>20 Next question: "And you would agree</p> <p>21 with me that if your talcum powder products had</p> <p>22 asbestos in them, it would place the consumers</p> <p>23 that use your product in needless danger,</p> <p>24 correct?"</p> <p>25 "It could, yes."</p>
<p style="text-align: right;">Page 83</p> <p>1 for you.</p> <p>2 MS. BROWN: As long as the doctor has</p> <p>3 time to review it -- you know he hasn't seen this</p> <p>4 before. If you're going to ask him questions</p> <p>5 about it, he needs to read it.</p> <p>6 MS. PARFITT: Just one.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Dr. Nich- -- or Dr. Diette, let me</p> <p>9 direct your attention to page 37.</p> <p>10 A Okay.</p> <p>11 Q And specifically line 2, and let me read</p> <p>12 it. We'll put it up on the ELMO.</p> <p>13 MS. BROWN: Counsel, while you're doing</p> <p>14 that, I'm going to object to taking one page out</p> <p>15 of Dr. Nicholson's deposition that the doctor has</p> <p>16 not reviewed and asking questions out of context.</p> <p>17 And if he needs to read the whole deposition to</p> <p>18 answer your question, he will need to do that.</p> <p>19 MS. PARFITT: Counsel, please not --</p> <p>20 let's not coach.</p> <p>21 MS. BROWN: And I'm objecting on the</p> <p>22 record to the improper questioning with snippets</p> <p>23 of somebody else's deposition.</p> <p>24 MS. PARFITT: Okay.</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 85</p> <p>1 Next question on page 48 of that same</p> <p>2 deposition --</p> <p>3 MS. BROWN: Counsel, I'm sorry, but your</p> <p>4 pages are not matching up to what we've been</p> <p>5 handed. Can you just direct us -- and we're -- in</p> <p>6 the snippet you gave us, I can't find this.</p> <p>7 THE WITNESS: I don't have 48. Mine</p> <p>8 goes to 41.</p> <p>9 MS. BROWN: Yeah, mine says 37, 37, 37.</p> <p>10 THE WITNESS: Maybe here in the whole</p> <p>11 thing?</p> <p>12 MR. HEASLIP: And mine is 46 through 53.</p> <p>13 MS. PARFITT: Okay.</p> <p>14 MS. BROWN: This is not what you're</p> <p>15 reading, so it's impossible to follow.</p> <p>16 Were you able to follow that, Doctor?</p> <p>17 MS. PARFITT: We have it on the</p> <p>18 overhead. I think --</p> <p>19 MR. ROSEN: I go to -- I go to 41.</p> <p>20 MS. BROWN: Yeah, well, he needs to have</p> <p>21 it in front of him. We don't have a copy.</p> <p>22 MS. PARFITT: Well, let's do this. I</p> <p>23 have an overhead and an ELMO. So let's keep</p> <p>24 going. Why don't you read the screen.</p> <p>25 Do you need me to go back over those</p>

22 (Pages 82 to 85)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 86</p> <p>1 questions?</p> <p>2 MS. BROWN: But, Counsel, that's not</p> <p>3 even a transcript. What is that?</p> <p>4 MS. PARFITT: It's --</p> <p>5 MS. MILLER: How are you going to mark</p> <p>6 that as an exhibit?</p> <p>7 MS. PARFITT: I'm going to put an</p> <p>8 exhibit sticker on it, and I'm going to put it in</p> <p>9 as representative pages from the Nicholson</p> <p>10 deposition.</p> <p>11 MS. BROWN: Can he find it in the large</p> <p>12 copy?</p> <p>13 MR. ROSEN: Would you mind passing</p> <p>14 back Exhibit 6 that we handed --</p> <p>15 THE WITNESS: Oh. This is all of your</p> <p>16 36's. That's a whole bundle of the same thing.</p> <p>17 But I would like to get the 36-page</p> <p>18 back --</p> <p>19 MS. PARFITT: Sure.</p> <p>20 THE WITNESS: -- if we're going to talk</p> <p>21 about it.</p> <p>22 MS. PARFITT: Absolutely. I want you to</p> <p>23 have actually 37, and you need -- here we go.</p> <p>24 MS. BROWN: This is the complete set?</p> <p>25 MS. PARFITT: Yes, I'm assuming.</p>	<p style="text-align: right;">Page 88</p> <p>1 Did I read all that correctly?</p> <p>2 A You did.</p> <p>3 Q All right. Do you -- so you disagree</p> <p>4 with Dr. Nicholson; is that correct?</p> <p>5 MS. BROWN: Objection to the form.</p> <p>6 MR. LOCKE: Objection.</p> <p>7 MS. BROWN: Misstates his testimony.</p> <p>8 THE WITNESS: I don't -- I don't agree</p> <p>9 or disagree. I mean, I -- I honestly don't know</p> <p>10 who she is other than what you just said. But --</p> <p>11 but it sounds like she's articulating a policy for</p> <p>12 the company, which I think is her right -- her</p> <p>13 right to do that and to express those opinions.</p> <p>14 BY MS. PARFITT:</p> <p>15 Q Okay. All right.</p> <p>16 Okay. Now, counsel provided for us in</p> <p>17 advance of this deposition a copy of your CV. So</p> <p>18 let me --</p> <p>19 THE WITNESS: Would it -- would it be a</p> <p>20 good time just to refill coffee? Is that okay?</p> <p>21 MS. PARFITT: Sure. And I should have</p> <p>22 said that. Any time you need a break --</p> <p>23 THE WITNESS: No, I know.</p> <p>24 MS. PARFITT: -- you holler.</p> <p>25 THE WITNESS: Thank you. I appreciate</p>
<p style="text-align: right;">Page 87</p> <p>1 MS. BROWN: You have that in front of</p> <p>2 you?</p> <p>3 THE WITNESS: I do.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q And, Dr. Diette, if you have any trouble</p> <p>6 reading any of that -- or you can also look up on</p> <p>7 the ELMO that's being displayed.</p> <p>8 MS. BROWN: Thank you.</p> <p>9 MS. PARFITT: Okay. Yeah, sorry.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Again, page 48, line 14.</p> <p>12 Do you have that there, Doctor, in front</p> <p>13 of you?</p> <p>14 A I do.</p> <p>15 Q Okay.</p> <p>16 "Q. You would agree, Dr. Nicholson, if</p> <p>17 Johnson & Johnson's Baby Powder indeed had</p> <p>18 asbestos in it, it would be imprudent and not</p> <p>19 reasonable for Johnson & Johnson to sell it to its</p> <p>20 consumers?"</p> <p>21 "A. I would agree with that.</p> <p>22 "Q. Thank you.</p> <p>23 "A. I would not support Johnson &</p> <p>24 Johnson selling a product that contained</p> <p>25 asbestos."</p>	<p style="text-align: right;">Page 89</p> <p>1 that.</p> <p>2 MS. PARFITT: You're very welcome.</p> <p>3 THE VIDEOGRAPHER: The time is 10:07</p> <p>4 p.m. We're going off the record.</p> <p>5 (Recess.)</p> <p>6 THE VIDEOGRAPHER: The time is</p> <p>7 10:20 a.m., and we're back on the record.</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Dr. Diette, are you still --</p> <p>10 THE VIDEOGRAPHER: Microphone, Counsel.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Are you good?</p> <p>13 A All set. Thank you.</p> <p>14 Q All right. Dr. Diette, if asbestos was</p> <p>15 found to be in talcum powder products -- strike</p> <p>16 that.</p> <p>17 Would the presence of asbestos in talcum</p> <p>18 powder products provide evidence to support the</p> <p>19 hypothesis that talcum powder products -- strike</p> <p>20 that.</p> <p>21 Would the presence of asbestos in talcum</p> <p>22 powder products provide biologically plausible</p> <p>23 evidence to support the hypothesis that talcum</p> <p>24 powder products can cause ovarian cancer?</p> <p>25 MR. LOCKE: Objection.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 90</p> <p>1 MS. BROWN: Objection to the form of the</p> <p>2 question.</p> <p>3 THE WITNESS: You would have to qualify</p> <p>4 it, right, because I -- if you're talking about</p> <p>5 like -- even like, you know, one fiber or</p> <p>6 something would be quite different than if there's</p> <p>7 a sufficient amount in order to -- to cause a</p> <p>8 disease, right. So it -- it always comes down to</p> <p>9 dose in terms of what you're talking about.</p> <p>10 So it's -- all by itself, I don't think</p> <p>11 that that question is answerable.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q Can one fiber of asbestos alone cause</p> <p>14 cancer?</p> <p>15 MS. BROWN: Objection to the form.</p> <p>16 THE WITNESS: It's -- it's so impossible</p> <p>17 to think that it would, because we all have</p> <p>18 asbestos in our lungs, and there's a background</p> <p>19 amount of asbestos in the world that if one fiber</p> <p>20 could do it, I think we would all have cancer. So</p> <p>21 I -- I think somebody could say that, but I don't</p> <p>22 think it would be true.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q You certainly don't think it's true; is</p> <p>25 that correct?</p>	<p style="text-align: right;">Page 92</p> <p>1 papers that have been either accepted or published</p> <p>2 since then. There's probably some talks and</p> <p>3 things. The -- the grant award section I'm sure</p> <p>4 needs updating.</p> <p>5 Q Okay. It looks, on the far right of</p> <p>6 that CV, that it's got a June 2017 date; is that</p> <p>7 correct?</p> <p>8 A It is.</p> <p>9 Q All right. Has there been a curriculum</p> <p>10 vitae prepared by you since June of 2017?</p> <p>11 A No.</p> <p>12 Q All right. Where would I get these</p> <p>13 additional articles and speeches? Do you have</p> <p>14 them in a -- contained in one particular place?</p> <p>15 A No. Where -- where you could get the</p> <p>16 articles would be on PubMed, and if you just did a</p> <p>17 PubMed search with my name, you would find them</p> <p>18 all.</p> <p>19 For speeches, I don't actually have a</p> <p>20 repository, so it's going to take me some work to</p> <p>21 actually sort of populate that part of the CV.</p> <p>22 Q Are you -- do you have any intention of</p> <p>23 updating your CV?</p> <p>24 A Yes. Can I give you an extra sentence</p> <p>25 or two?</p>
<p style="text-align: right;">Page 91</p> <p>1 A Oh, for sure, yeah.</p> <p>2 Q Okay. Let me mark at this time a</p> <p>3 copy -- a copy of your curriculum vitae, and we'll</p> <p>4 have it marked as exhibit -- Exhibit 7.</p> <p>5 (Diette Exhibit No. 7 was marked</p> <p>6 for identification.)</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Do you have that in front of you?</p> <p>9 A I do.</p> <p>10 Q Okay. Who prepared that curriculum</p> <p>11 vitae?</p> <p>12 A Well, not one person. This is an</p> <p>13 iterative exercise over time. So it's -- I mean,</p> <p>14 me in the sense, although not as the person, you</p> <p>15 know, typing the words, but it's -- you know, it's</p> <p>16 my -- my information on here. And I've had</p> <p>17 different administrative assistants who have --</p> <p>18 who have helped to sort of shape it.</p> <p>19 Q Is it current?</p> <p>20 A No.</p> <p>21 Q It's not?</p> <p>22 A It's not.</p> <p>23 Q All right. What additions or deletions</p> <p>24 would you make to your curriculum vitae?</p> <p>25 A For the most part, I'd add a bunch of</p>	<p style="text-align: right;">Page 93</p> <p>1 Q Sure.</p> <p>2 A Okay. So I sure want to. The stakes</p> <p>3 are low for me at this point. This is our</p> <p>4 Department of Medicine format CV, which we use for</p> <p>5 promotion purposes, for the most part. I've been</p> <p>6 promoted to professor, which there's no other rank</p> <p>7 to get promoted to. And so it's not really that</p> <p>8 urgent for me to -- to change that.</p> <p>9 Then on top of that, my administrative</p> <p>10 assistant went out on maternity leave, and then I</p> <p>11 didn't want to swamp her with this when she came</p> <p>12 back.</p> <p>13 Q That was nice.</p> <p>14 A And literally just last week, she took a</p> <p>15 new job, a better job but in a different place.</p> <p>16 So long answer, yeah, I want to, but</p> <p>17 it's not going to happen really soon.</p> <p>18 Q Okay. So your current academic</p> <p>19 appointment at Johns Hopkins University, is that a</p> <p>20 professor of medicine, is that correct, Division</p> <p>21 of Pulmonary and Critical Care?</p> <p>22 A Yeah, and I think it's called Pulmonary,</p> <p>23 Criteria Care and Sleep Medicine now. We just --</p> <p>24 we just changed the name recently.</p> <p>25 Q And sleep medicine?</p>

Gregory B. Diette, M.D.

Page 94	Page 96
<p>1 A And sleep, yeah.</p> <p>2 Q All right. Are you still within the</p> <p>3 Department of Epidemiology?</p> <p>4 A Yes.</p> <p>5 Q All right. Are you still an associate</p> <p>6 professor of medicine in epi and environmental</p> <p>7 health?</p> <p>8 A No, that's a typo somewhere. I don't</p> <p>9 know where you saw that, but -- oh, probably in my</p> <p>10 report. But, no, I'm -- the professor label</p> <p>11 carries across all the -- the different entities.</p> <p>12 Q So you're no longer an associate</p> <p>13 professor.</p> <p>14 A Right. Professor of whatever it is that</p> <p>15 I'm a professor of.</p> <p>16 Q All right. Your board certification is</p> <p>17 in pulmonary and critical care?</p> <p>18 A It's in internal medicine and pulmonary</p> <p>19 medicine.</p> <p>20 Q You're not a member of the American</p> <p>21 College of Epidemiology, correct?</p> <p>22 A No.</p> <p>23 Q Your undergraduate degree was in</p> <p>24 English?</p> <p>25 A English and economics.</p>	<p>1 hospital as well.</p> <p>2 Q All right. So if someone were going on</p> <p>3 the website to look at the hospital, the medical</p> <p>4 school, medical center, this is what they would</p> <p>5 see. And look over to the far right, and it has</p> <p>6 "Expertise." Do you see that?</p> <p>7 A I do.</p> <p>8 Q All right. Is -- it reads: "Expertise:</p> <p>9 Asthma, chronic obstructive pulmonary disease</p> <p>10 (COPD), pulmonary" -- excuse me -- "pulmonary</p> <p>11 disease, and critical care medicine, pulmonary</p> <p>12 medicine."</p> <p>13 Is that correct?</p> <p>14 A It is correct.</p> <p>15 Q All right. Is there anything you want</p> <p>16 to add with regard to your expertise?</p> <p>17 MS. BROWN: Objection to the form of the</p> <p>18 question.</p> <p>19 THE WITNESS: So I honestly don't know</p> <p>20 what this is. I mean, I don't doubt that it comes</p> <p>21 from Hopkins, but it's not something I look at.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Okay.</p> <p>24 A If you -- well, no, just one second.</p> <p>25 Because if you look at the bottom, it says</p>
Page 95	Page 97
<p>1 Q Okay. And then post-medical school, you</p> <p>2 received a MHS in public health; is that correct?</p> <p>3 A Well, it was in epidemiology.</p> <p>4 Q Okay.</p> <p>5 A I only just say that because there is a</p> <p>6 degree in public health, and that's not what mine</p> <p>7 was called.</p> <p>8 Q Okay. Let me show you what we'll have</p> <p>9 marked as the Johns Hopkins Medicine website as --</p> <p>10 MS. PARFITT: What exhibit?</p> <p>11 MS. BROWN: 8.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q -- Exhibit 8?</p> <p>14 (Diette Exhibit No. 8 was marked</p> <p>15 for identification.)</p> <p>16 BY MS. PARFITT:</p> <p>17 Q All right. Do you have that in front of</p> <p>18 you?</p> <p>19 A I do.</p> <p>20 Q All right. Now, this is for the Johns</p> <p>21 Hopkins Medical School; is that correct, or</p> <p>22 medical center?</p> <p>23 A So I don't know. You know, the top says</p> <p>24 "Johns Hopkins Medicine," which is a broader label</p> <p>25 that includes the medical school and probably the</p>	<p>1 "Request an appointment." So this looks like some</p> <p>2 kind of place that somebody could go and find a</p> <p>3 call-in number to get an appointment for -- for a</p> <p>4 doctor.</p> <p>5 Q Okay.</p> <p>6 A So I think it's -- I don't know. I</p> <p>7 could add all kinds of things, but I don't -- I</p> <p>8 don't know what the format is for this. Like I</p> <p>9 don't know if there is a word limit.</p> <p>10 Q Sorry.</p> <p>11 A I don't know -- I don't know what the</p> <p>12 purpose of this is.</p> <p>13 Q All right. The second line says:</p> <p>14 "Research interests," and it states:</p> <p>15 "Environmental impacts on lung disease,</p> <p>16 epidemiology of airway disease and chronic</p> <p>17 obstructive pulmonary disease, asthma."</p> <p>18 Did I read that correctly?</p> <p>19 A You did.</p> <p>20 Q Does that accurately reflect your</p> <p>21 current research interests?</p> <p>22 MS. BROWN: Objection. Form.</p> <p>23 THE WITNESS: Well, it's some, but it's</p> <p>24 so incomplete. You know, it's obviously just a</p> <p>25 couple of snippets that somebody chose to put on</p>

Gregory B. Diette, M.D.

Page 98	Page 100
<p>1 this -- on this page.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Okay. Well, I will represent to you</p> <p>4 that if one chose to go on the Johns Hopkins</p> <p>5 Medicine website, this is how they hold you out to</p> <p>6 the -- to the world, so to speak.</p> <p>7 MS. BROWN: Objection to the speech. Is</p> <p>8 there a question?</p> <p>9 THE WITNESS: So --</p> <p>10 MS. PARFITT: Counsel --</p> <p>11 MS. BROWN: There's no question.</p> <p>12 MS. PARFITT: -- please.</p> <p>13 MS. BROWN: Is there a question?</p> <p>14 MS. PARFITT: Yes.</p> <p>15 MS. BROWN: What is it?</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Is this how -- is this information</p> <p>18 correct, Dr. Diette?</p> <p>19 A Oh, the information is correct.</p> <p>20 Q Okay.</p> <p>21 A It's very incomplete.</p> <p>22 Q Okay. Let me show you now what we'll</p> <p>23 have marked as Exhibit 9.</p> <p>24 (Diette Exhibit No. 9 was marked</p> <p>25 for identification.)</p>	<p>1 it to see if it's accurate or not, but there's --</p> <p>2 there's certainly more about me than just those</p> <p>3 couple of --</p> <p>4 Q Okay. Well, you know, that's a good</p> <p>5 point, and I missed that. So thank you for</p> <p>6 bringing that to our attention.</p> <p>7 Let's look at that sec- -- second page</p> <p>8 of the website for Johns Hopkins Medical Center.</p> <p>9 MR. TISI: Counsel, that is Exhibit 8.</p> <p>10 MS. PARFITT: And it is Exhibit 8.</p> <p>11 Thank you.</p> <p>12 Okay. Let's put that up there.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q And there's a category that says</p> <p>15 "Background"; is that correct?</p> <p>16 A It is.</p> <p>17 Q All right. Now, it states:</p> <p>18 "Dr. Gregory Diette is a professor of medicine at</p> <p>19 the Johns Hopkins University School of Medicine.</p> <p>20 He holds a joint appointment in the Department of</p> <p>21 Epidemiology in the Johns Hopkins Bloomberg School</p> <p>22 of Public Health." Hashtag, "His areas of</p> <p>23 clinical expertise include asthma and obstructive</p> <p>24 lung disease."</p> <p>25 Did I read that correctly?</p>
Page 99	Page 101
<p>1 THE WITNESS: Can I just -- just</p> <p>2 clarify?</p> <p>3 BY MS. PARFITT:</p> <p>4 Q There's no question pending right now.</p> <p>5 A I want to clarify my last --</p> <p>6 MS. BROWN: But if you want --</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Your counsel will have a chance to -- to</p> <p>9 talk with you.</p> <p>10 MS. BROWN: Whoa, Counsel. Are you</p> <p>11 going to take the position on the record that the</p> <p>12 witness can't clarify any --</p> <p>13 MS. PARFITT: No, I'm not doing that</p> <p>14 all.</p> <p>15 MS. BROWN: Well, that was his request,</p> <p>16 and he wanted to --</p> <p>17 BY MS. PARFITT:</p> <p>18 Q What do you need to do, Doctor? I'm</p> <p>19 sorry.</p> <p>20 A Oh, well, I just -- because we were</p> <p>21 talking about this front page, and I didn't</p> <p>22 realize there were other pages here. This still</p> <p>23 isn't complete, but there's a whole lot here more</p> <p>24 about me than just what was on that front page. I</p> <p>25 just wanted to point to all that. I haven't read</p>	<p>1 A You did.</p> <p>2 Q Okay. Is that correct?</p> <p>3 A That -- that it includes those two</p> <p>4 diseases?</p> <p>5 Q Yes.</p> <p>6 A It does include that.</p> <p>7 Q Okay. And the third paragraph reads:</p> <p>8 "His research interests include environmental</p> <p>9 impacts on lung disease, epidemiology of airway</p> <p>10 disease, and chronic obstructive pulmonary</p> <p>11 disease."</p> <p>12 Did I read that correctly?</p> <p>13 A You did.</p> <p>14 Q All right. And does that reflect some</p> <p>15 of your research interests?</p> <p>16 A It does.</p> <p>17 Q All right. Now, let's move over -- and</p> <p>18 thank you for correcting me on that.</p> <p>19 Now, I will represent to you that</p> <p>20 Exhibit 9 is from the website from the Bloomberg</p> <p>21 School of Public Health.</p> <p>22 Do you have that in front of you?</p> <p>23 A I do.</p> <p>24 Q All right. Now, if one was to go onto</p> <p>25 the website for the Bloomberg School of Public</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 102</p> <p>1 Health, this is the type of information they would 2 receive, Dr. Diette. 3 Look down at the "Overview." Do you see 4 that? 5 A I do. 6 Q Okay. It says -- 7 MS. PARFITT: Let's get that up on the 8 ELMO. 9 BY MS. PARFITT: 10 Q All right. Do you see under "Overview," 11 it says: "My research focuses on identifying 12 factors that cause or provoke asthma. We have 13 been interested especially in air pollutants," 14 parens, "particulate matter, NO2, secondhand 15 smoke," close parens, "and allergens," parens, 16 "including mouse," close parens, "that are 17 especially problematic in inner city homes. We 18 are studying the effects of these pollutants and 19 allergens on inflammation and oxidative stress. 20 More recently, we have begun examining how dietary 21 patterns, especially a Western diet style -- a 22 Western-style diet, may increase susceptibility to 23 inhalable pollutants and allergens." 24 Did I read that correctly? 25 A You did.</p>	<p style="text-align: right;">Page 104</p> <p>1 patients who come to you are experiencing? 2 MS. BROWN: Objection to the form. 3 THE WITNESS: And I'll do my best, and 4 then if it's not what you're looking for, please 5 just ask me to clarify. 6 I -- I see probably, you know, almost 7 every single kind of medical problem there is 8 because I -- I attend in so many different 9 locations within the Hopkins system. So meaning 10 that I do work in the intensive care unit where 11 it's every kind of medical problem you could 12 imagine, it just happens to be the sickest of the 13 sick. So it could be any -- any organ system, or 14 not even an organ system, but all sorts of 15 illnesses. 16 In the pulmonary clinic, I see -- I 17 certainly see people with asthma and COPD, but I 18 see pretty much any kind of pulmonary disease and 19 get referrals for things that aren't pulmonary 20 diseases. They -- they may be somebody who's got 21 a -- a symptom that turns out not to be a 22 pulmonary disease. 23 In the oncology center, when I attend 24 there, I see every kind of cancer patient that at 25 least that Hopkins sees.</p>
<p style="text-align: right;">Page 103</p> <p>1 Q Okay. And then again, under your 2 "Research Interests, it states: "Epidemiology of 3 lung diseases, asthma, COPD" -- 4 And what's COPD? 5 A Chronic obstructive pulmonary disease. 6 Q -- "outcomes, environmental," and then 7 it says, "Particulate matter, allergens and health 8 disparities." 9 Did I read that correctly? 10 A You did. 11 Q All right. Does that represent some of 12 your research interests? 13 A It does represent some. 14 Q Okay. You are a clinician? 15 A True. 16 Q All right. What is the profile of the 17 types of patients that you see in your practice? 18 MS. BROWN: Form. 19 THE WITNESS: You want me to just take a 20 stab at it? Because I'm not sure -- is profile -- 21 MS. BROWN: If you don't understand the 22 question, I'm sure counsel will clarify it. 23 MS. PARFITT: I will, sure. 24 BY MS. PARFITT: 25 Q What is the nature of the diseases that</p>	<p style="text-align: right;">Page 105</p> <p>1 And then I'm also lucky enough to attend 2 on the general internal medicine service, and so 3 there it's really everything, it's all comers. 4 And so it ranges from basically head-to-toe kind 5 of medicine. 6 BY MS. PARFITT: 7 Q Okay. Now, if I arrived at -- for in -- 8 I guess you said the intensive care clinic, and I 9 had a gynecological problem, would I see you? 10 MS. BROWN: Objection to the form. 11 THE WITNESS: So there's no intensive 12 care clinic, just to be clear. Like a clinic is 13 an outpatient setting. So our intensive care unit 14 is an inpatient setting for critically ill people. 15 BY MS. PARFITT: 16 Q Okay. 17 A So you might or might not end up seeing 18 me, because if we're -- the way that the program 19 works is that -- so, for example, if somebody is 20 pregnant, just giving an example, if it's an early 21 pregnancy, then those patients would end up in our 22 medical ICU. If it's a later pregnancy, then they 23 would go to the -- the obstetrics unit to their -- 24 their own particular unit. And then you might see 25 me if I was consulted into that unit, whether or</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 106</p> <p>1 not you were in our -- our unit or not.</p> <p>2 Q So if I came in with a gynecological</p> <p>3 problem, they might call you -- you, who are a</p> <p>4 pulmonologist, they might call you in to consult</p> <p>5 with me?</p> <p>6 MS. BROWN: Objection to the form of the</p> <p>7 question and the tone.</p> <p>8 THE WITNESS: Well, I am picking up the</p> <p>9 tone, which I -- which I think -- I mean, I know</p> <p>10 you're trying to make a point here. And the</p> <p>11 question as you asked it is -- the answer is, of</p> <p>12 course. But I think what you're trying to get at</p> <p>13 is would they have asked me to come deal with</p> <p>14 their pregnancy, for example, and I wouldn't be</p> <p>15 the person dealing with their pregnancy. I would</p> <p>16 be dealing with something else.</p> <p>17 BY MS. PARFITT:</p> <p>18 Q Okay. All right. Is it fair to say</p> <p>19 that your practice primarily deals with</p> <p>20 individuals who have pulmonary and lung disease</p> <p>21 conditions?</p> <p>22 MS. BROWN: Objection.</p> <p>23 THE WITNESS: I think if you dial back</p> <p>24 and listen to what I said for those other answers,</p> <p>25 you would be pretty clear that it isn't just that.</p>	<p style="text-align: right;">Page 108</p> <p>1 certainly interested in pollutants.</p> <p>2 Q Okay. And more recently, you've</p> <p>3 expressed a research interest in dietary patterns</p> <p>4 particularly, and especially a Western diet and</p> <p>5 how that might increase susceptibility to</p> <p>6 inhalable pollutants; is that correct?</p> <p>7 A True.</p> <p>8 MS. BROWN: Form.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q Are you -- have you published recently</p> <p>11 on that?</p> <p>12 A I'm sure there's stuff that's come out.</p> <p>13 Q Well, I only have your CV from 2017, so</p> <p>14 I'll represent that I'm not seeing something on</p> <p>15 that CV.</p> <p>16 Is there something you've done recently?</p> <p>17 A Yeah, it's a couple of years ago.</p> <p>18 Q Okay.</p> <p>19 A I mean the best way to find stuff would</p> <p>20 be on PubMed.</p> <p>21 Q All right. You've been retained to</p> <p>22 serve as an expert for Johnson & Johnson, correct?</p> <p>23 MS. BROWN: Form.</p> <p>24 THE WITNESS: That's correct.</p> <p>25 BY MS. PARFITT:</p>
<p style="text-align: right;">Page 107</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Okay. Well, I would include asthma in</p> <p>3 that as well.</p> <p>4 MS. BROWN: Same objection.</p> <p>5 THE WITNESS: Well, include it, but I</p> <p>6 mean -- but, you know, when I'm on the general</p> <p>7 internal medicine service, I'm not seeing mostly</p> <p>8 asthma. I might be seeing somebody with diabetes</p> <p>9 or a heart attack or pelvic inflammatory disease,</p> <p>10 you know, to name a GYN problem. I mean it's the</p> <p>11 whole gamut from head to toe.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q Is it fair to say your research in</p> <p>14 public health focuses on factors that cause and</p> <p>15 provoke asthma?</p> <p>16 MS. BROWN: Objection to the form of the</p> <p>17 question.</p> <p>18 THE WITNESS: It's a focus.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Is it fair to say that you have a</p> <p>21 particular interest in air pollutants, and that</p> <p>22 includes secondhand smoke and mouse allergens?</p> <p>23 A I agree with most of what you said, but</p> <p>24 not literally the way you said it, because I don't</p> <p>25 think mouse allergen's a pollutant. So I'm</p>	<p style="text-align: right;">Page 109</p> <p>1 Q Okay. Do you know what the -- do you</p> <p>2 have an understanding of what the allegations are</p> <p>3 against Johnson & Johnson?</p> <p>4 MS. BROWN: Objection to the form.</p> <p>5 THE WITNESS: Which -- which ones?</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Do you know why you're -- Johnson &</p> <p>8 Johnson is being sued?</p> <p>9 MS. BROWN: Objection.</p> <p>10 Counsel, are you asking a legal</p> <p>11 question?</p> <p>12 MS. PARFITT: No.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Do you have any understanding of the</p> <p>15 allegations or the nature of the lawsuit against</p> <p>16 Johnson & Johnson, the company that's retained you</p> <p>17 to provide expert legal testimony?</p> <p>18 MS. BROWN: Same objection.</p> <p>19 THE WITNESS: I think, generally</p> <p>20 speaking, what I understand is that there's an</p> <p>21 allegation that talcum powder causes ovarian</p> <p>22 cancer.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. Do you have an understanding of</p> <p>25 the allegations against Imerys?</p>

Gregory B. Diette, M.D.

Page 110	Page 112
<p>1 MS. BROWN: Objection.</p> <p>2 THE WITNESS: I don't have any separate</p> <p>3 understanding.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Okay. Do you know who Imerys are -- is</p> <p>6 or are?</p> <p>7 A I'm aware that it's a supply company of</p> <p>8 some sort, but I don't know much more about them.</p> <p>9 Q All right. And do you have an</p> <p>10 understanding of the allegations against the</p> <p>11 Personal Care Products Corporation --</p> <p>12 MS. BROWN: Objection.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q -- otherwise known as the PCPC?</p> <p>15 MS. BROWN: Objection. Calls for</p> <p>16 speculation.</p> <p>17 THE WITNESS: I don't --</p> <p>18 MR. LOCKE: Objection.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q You don't.</p> <p>21 A I don't know who that is.</p> <p>22 Q All right. Have you ever seen a</p> <p>23 complaint in this case?</p> <p>24 MS. BROWN: Objection.</p> <p>25 BY MS. PARFITT:</p>	<p>1 through it quickly and just get a sense of what</p> <p>2 the case is about.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q And then what do you do with it?</p> <p>5 MS. BROWN: Form.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Do you keep it?</p> <p>8 A Oh, not forever. I mean if the case is</p> <p>9 over, then I destroy it with all the other</p> <p>10 materials.</p> <p>11 Q Well, this case is far from over.</p> <p>12 Have -- do you still have --</p> <p>13 MS. BROWN: Counsel, just ask the</p> <p>14 question.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q -- a copy of the complaint?</p> <p>17 MS. MILLER: You asked about a state</p> <p>18 court case.</p> <p>19 MS. PARFITT: No. I said was there --</p> <p>20 hey -- again, hey, ladies, I'm sorry, I think the</p> <p>21 two of you are going to have to agree who is going</p> <p>22 to com- -- who's going to complain -- who's going</p> <p>23 to object. One of you can object.</p> <p>24 MS. BROWN: Well, if you're going to</p> <p>25 complain, I'm going to object.</p>
Page 111	Page 113
<p>1 Q And when I say "this case," I'm talking</p> <p>2 about this case of talcum powder products and</p> <p>3 ovarian cancer, be it in an MDL context or a state</p> <p>4 context.</p> <p>5 MS. BROWN: Same objection.</p> <p>6 MS. MILLER: With any complaint, any</p> <p>7 talcum --</p> <p>8 MS. PARFITT: Any -- yeah, has he ever</p> <p>9 seen a complaint in any talcum powder product and</p> <p>10 ovarian cancer case.</p> <p>11 MS. BROWN: Objection to the form.</p> <p>12 THE WITNESS: I'm sure I must have.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q You're sure you must have.</p> <p>15 Is it in the materials that you have</p> <p>16 reviewed for purposes of your -- your deposition</p> <p>17 today or for purposes of the report you prepared?</p> <p>18 A No.</p> <p>19 MS. BROWN: Objection.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Okay. If you have seen it, what have</p> <p>22 you done with it?</p> <p>23 MS. BROWN: Objection. Vague.</p> <p>24 THE WITNESS: Well, the same thing I do</p> <p>25 with any complaint, which is just to try to read</p>	<p>1 MS. PARFITT: Okay.</p> <p>2 MS. BROWN: Please just ask the</p> <p>3 question. No speeches.</p> <p>4 MS. PARFITT: Then, please, and I --</p> <p>5 listen, I think that we're getting at a crossroads</p> <p>6 here. One person gets to object. And let me</p> <p>7 remind you what the CMO says, because I know you</p> <p>8 know that --</p> <p>9 MS. BROWN: Counsel --</p> <p>10 MS. PARFITT: And I'm not admonishing.</p> <p>11 Let me finish, Counsel --</p> <p>12 MS. BROWN: Don't yell at me.</p> <p>13 MS. PARFITT: -- and then you can speak.</p> <p>14 MS. BROWN: You're raising your tone at</p> <p>15 me.</p> <p>16 MS. PARFITT: Well, the camera will --</p> <p>17 oh, please, don't be so condescending.</p> <p>18 MS. BROWN: Sure, it's going to reflect</p> <p>19 that you're raising your tone.</p> <p>20 MS. PARFITT: I hope -- I hope that the</p> <p>21 Judge sees this because we're probably --</p> <p>22 MS. BROWN: We are well aware of the</p> <p>23 CMO.</p> <p>24 MS. PARFITT: -- going to have to call</p> <p>25 him soon.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 114</p> <p>1 MS. BROWN: We are complying with it. 2 We're happy to call the Judge. 3 MS. PARFITT: So the CMO says that you 4 get to say, "Objection. Form." That's what you 5 get to say. 6 You have a wonderful opportunity at the 7 end of this deposition to ask him as many 8 questions as you like, but for right now, my time, 9 my deposition. It's, "Objection. Form." And I 10 really would appreciate that courtesy. I will 11 give it to you, but I would appreciate getting it 12 back. So -- 13 MS. BROWN: And to be clear -- 14 MS. PARFITT: No, Counsel, no more 15 speeches. No more speeches. 16 MS. BROWN: You just made a speech, and 17 I'm going to respond -- 18 MS. PARFITT: No more speeches, Counsel. 19 My deposition. 20 MS. BROWN: No, Counsel. 21 MS. PARFITT: Not your deposition. 22 BY MS. PARFITT: 23 Q Next question I have -- 24 MS. PARFITT: No more questions, 25 Counsel. You want me to depose you?</p>	<p style="text-align: right;">Page 116</p> <p>1 THE WITNESS: Can you say it again? 2 BY MS. PARFITT: 3 Q Sure. 4 A Yeah. 5 Q Have you ever been provided 6 gynecological care or treatment for a woman who 7 has been diagnosed with ovarian cancer? 8 A So there's just a couple of things 9 there, and I think maybe I heard it wrong. 10 Did you say been provided care? 11 Q Have you ever provided -- 12 A Provided. Okay. I'm sorry. I thought 13 you said "been provided." 14 Q No, no, no, no. 15 MS. MILLER: You did say that. 16 THE WITNESS: I thought it sounded like 17 did I get care. I was like -- 18 MS. MILLER: You did -- 19 BY MS. PARFITT: 20 Q No, I -- I don't think you did. 21 A Yeah, right. 22 Q I know, that would have been a very 23 awkward question, wouldn't it? 24 Have you ever provided gynecological 25 care or treatment for a woman who has been</p>
<p style="text-align: right;">Page 115</p> <p>1 MS. BROWN: Counsel, no. You are 2 raising your tone. 3 MS. PARFITT: Counsel -- 4 MS. BROWN: You are yelling at me. 5 MS. PARFITT: -- you know what, I was 6 told a little bit earlier nobody could hear me. 7 So I have lifted my voice, and now I'm using my 8 stage voice. So now everyone can hear me, and now 9 I'm speaking too loud to you. 10 So I'm going to try -- you know, you 11 can't have it both ways. One speaker, one 12 objectioner. Next question. 13 MS. BROWN: The record will reflect that 14 you are making incessant speeches. Please -- 15 BY MS. PARFITT: 16 Q Are you an oncologist, Dr. Diette? 17 A I am not an oncologist. 18 Q Are you a radiation oncologist? 19 A No. 20 Q Are you a gynecologist? 21 A No. 22 Q Okay. Have you ever provided 23 gynecological care or treatment for a woman who 24 has been diagnosed with ovarian cancer? 25 MS. BROWN: Objection. Form.</p>	<p style="text-align: right;">Page 117</p> <p>1 diagnosed with ovarian cancer? 2 A Sure. And I think it goes back to some 3 of the things I said before where I see people in 4 the hospital who have ovarian cancer, and through 5 my training, you know, for medical school and 6 residency, that was part of our training also, 7 which was to rotate on services where people 8 had every -- every imaginable illness. 9 Q Okay. Well, your residency was how long 10 ago? 11 MS. BROWN: Objection. 12 THE WITNESS: My residency was 1990 to 13 1993. 14 BY MS. PARFITT: 15 Q Okay. So I'm not talking about what you 16 did in 1993, back in that period of time. 17 What I'm talking about is whether or not 18 you have actually provided gynecological care to a 19 woman who presented to you with ovarian cancer? 20 MS. BROWN: Objection to the form. 21 Asked and answered five times. 22 You can answer, Dr. Diette. 23 BY MS. PARFITT: 24 Q And by that, primary care. Not in a 25 consulting role but primary care.</p>

30 (Pages 114 to 117)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 118</p> <p>1 MS. BROWN: Same objection. 2 THE WITNESS: I think I know your 3 question, but could you be specific like -- 4 BY MS. PARFITT: 5 Q Sure. 6 A -- like just an example, and then I'll 7 know that we're talking about the same thing. 8 Q Okay. Have you ever provided primary 9 care, gynecological care or treatment for a woman 10 who has been diagnosed with ovarian cancer? 11 A So -- 12 MR. LOCKE: Objection. 13 THE WITNESS: -- I'm not trying to 14 criticize the question, but primary care sounds 15 like something that a -- like a family 16 practitioner or an internist would do. I think 17 you mean something else, so -- 18 BY MS. PARFITT: 19 Q I do. Okay. What I'm talking about is 20 if I called up Johns Hopkins and said, I have been 21 diagnosed with ovarian cancer, I need to see a 22 physician, would I be referred to the pulmonology 23 department, your department, or would I be 24 referred to a different department? 25 MS. BROWN: Objection to the form.</p>	<p style="text-align: right;">Page 120</p> <p>1 hygienist? 2 A No. 3 Q Okay. Are you what's referred to as a 4 mineralogist or a mineral scientist specialist? 5 A Neither one. 6 Q Are you a geologist? 7 A No. 8 Q Okay. Is it fair to say that you do not 9 hold yourself out in the scientific and medical 10 community as an expert with regard to testing 11 standards of particulate matter, toxins or 12 carcinogens? 13 A I think that sounds right. 14 Q And that would include testing of 15 minerals -- or, excuse me, that would include 16 testing of asbestos? 17 MS. BROWN: Objection to the form. 18 THE WITNESS: Correct. 19 BY MS. PARFITT: 20 Q And that would include testing of talcum 21 powder products? 22 A That I -- I don't do that, is that 23 right? 24 Q Right. 25 A Yeah, that's correct.</p>
<p style="text-align: right;">Page 119</p> <p>1 THE WITNESS: Different department, 2 assuming it's literally for the care of the 3 ovarian cancer. 4 BY MS. PARFITT: 5 Q Okay. Fair. Thank you. 6 Have you ever researched the life 7 expectancy of a woman who has ovarian cancer? 8 A No. 9 MS. BROWN: Objection to the form. 10 BY MS. PARFITT: 11 Q Are you a pathologist? 12 A I am not. 13 Q All right. And are you a radiologist? 14 A I am not. 15 Q Okay. Are you a mineralogist? 16 A No. 17 Q Are you a toxicologist? 18 A No. 19 Q Are you a pharmacologist? 20 A No. 21 Q Okay. Are you a regulatory expert? 22 A I don't know what that means, but I 23 don't -- I don't use those words to describe 24 myself. 25 Q Okay. Are you a certified industrial</p>	<p style="text-align: right;">Page 121</p> <p>1 Q All right. Let's talk a little bit 2 about your publications and your research. 3 Let me direct your attention to -- I 4 believe this is Appendix C of your CV, which I 5 believe is Exhibit 7. 6 Do you have that in front of you? 7 A I do. 8 Q Okay. I understand, now that I have a 9 CV that's dated June of 2017, and the CV I have, 10 it says that you've published approximately 167 11 publications in peer-reviewed literature. 12 Is that correct or incorrect? 13 A It was probably true as of June 2017. 14 Q All right. So sitting here today in 15 April of 2019, approximately how many publications 16 in peer-reviewed journals have you published? 17 A I think if you look on PubMed, you will 18 see more than 200. 19 Q Okay. Is it fair to say that you've 20 published no papers or studies in the peer- 21 reviewed literature about asbestos or asbestos- 22 related diseases? 23 A Correct. 24 Well, can you ask that as two different 25 questions?</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 122</p> <p>1 Q Sure.</p> <p>2 A I can help you just clarify what I --</p> <p>3 what I'm trying to answer.</p> <p>4 Q Please.</p> <p>5 A So nothing about asbestos, but if you --</p> <p>6 if you consider asbestos-related diseases to</p> <p>7 include lung cancer, for example, that there are</p> <p>8 publications that bear on lung cancer, and there's</p> <p>9 at least one article, maybe more, on interstitial</p> <p>10 lung diseases, and asbestosis would be an</p> <p>11 interstitial lung disease.</p> <p>12 Q Okay. Can you tell me what those</p> <p>13 articles are?</p> <p>14 A Let's see. Would the -- how do you want</p> <p>15 me to do it, like the number?</p> <p>16 Q If you give me the number, that would be</p> <p>17 fine.</p> <p>18 A Yeah. So number 5 has to do with lung</p> <p>19 cancer.</p> <p>20 Q Now, does that have to do with lung</p> <p>21 cancer and asbestos exposure?</p> <p>22 A No, not specifically.</p> <p>23 Q All right. So that has -- that is not</p> <p>24 lung cancer and asbestos.</p> <p>25 All right. Is there another one?</p>	<p style="text-align: right;">Page 124</p> <p>1 THE WITNESS: So that's a different</p> <p>2 question. So the answer to that is no.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q All right. Have you published any</p> <p>5 papers in the peer-reviewed literature on</p> <p>6 mesothelioma?</p> <p>7 A No.</p> <p>8 Q All right. So nowhere in the 200</p> <p>9 publications that you have prepared would I see</p> <p>10 the word "mesothelioma"?</p> <p>11 A I can't promise that you won't see that</p> <p>12 word in some paper, but there's not a paper whose</p> <p>13 primary topic is about mesothelioma.</p> <p>14 Q All right. Very good.</p> <p>15 Having reviewed your 200 or so</p> <p>16 publications, is it fair to say that there are no</p> <p>17 peer-reviewed publications regarding the subject</p> <p>18 matter of ovarian cancer?</p> <p>19 A That's correct.</p> <p>20 Q Is it fair to say that none of your</p> <p>21 peer-reviewed papers address a diagnosis of</p> <p>22 ovarian cancer?</p> <p>23 MS. BROWN: Objection. Form. I don't</p> <p>24 understand that.</p> <p>25 THE WITNESS: Well, I think -- I think</p>
<p style="text-align: right;">Page 123</p> <p>1 A Yeah, so if you look at number 6, this</p> <p>2 is, you know, a study about evaluating lung masses</p> <p>3 and large lymph nodes.</p> <p>4 Q Yes.</p> <p>5 A So that would include, you know, lung</p> <p>6 cancer in that as well.</p> <p>7 Q Does that include asbestos and lung</p> <p>8 cancer?</p> <p>9 A Not specifically.</p> <p>10 Q All right. Any others?</p> <p>11 A I would say any of the ones where you</p> <p>12 see the word "bronchoscopy," it has something to</p> <p>13 do with lung cancer for the most part, though not</p> <p>14 literally lung cancer and asbestos.</p> <p>15 So, for example, like 21, number 2,</p> <p>16 number 3, you know, all sort of have some bearing</p> <p>17 on at least the -- you know, the care or</p> <p>18 management of people with suspected lung cancer or</p> <p>19 who actually have lung cancer.</p> <p>20 Q Dr. Diette, my question is very specific</p> <p>21 to publications in the peer-reviewed journal that</p> <p>22 deal with the topic of asbestos or asbestos-</p> <p>23 related diseases like lung cancer where the word</p> <p>24 "asbestos" appears in your publication.</p> <p>25 MS. BROWN: Objection to the form.</p>	<p style="text-align: right;">Page 125</p> <p>1 the answer to the one before encompasses, you</p> <p>2 know, something else with the word "ovarian</p> <p>3 cancer" in the question.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Okay. All right. Have you published</p> <p>6 any peer-reviewed publications that talk about the</p> <p>7 causes of ovarian cancer?</p> <p>8 MS. BROWN: Objection.</p> <p>9 THE WITNESS: No.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Have you published any peer-reviewed</p> <p>12 papers that talk about risk factors for ovarian</p> <p>13 cancer?</p> <p>14 MS. BROWN: Same objection.</p> <p>15 THE WITNESS: No.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Have you published any publications in</p> <p>18 the peer-reviewed journal on risk factors for</p> <p>19 mesothelioma?</p> <p>20 A No.</p> <p>21 Q What causes mesothelioma?</p> <p>22 A A few things. You know, asbestos in</p> <p>23 sufficient dose can do it. Radiation can do it.</p> <p>24 There's some other minerals that aren't asbestos</p> <p>25 that are suspected to do it. It can arise on its</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 126</p> <p>1 own spontaneously. And, you know, there's</p> <p>2 thoughts of, at least in the peritoneum, about</p> <p>3 certain kinds of chronic inflammation that may</p> <p>4 lead to that as well.</p> <p>5 Q Okay. Can asbestos cause lung cancer?</p> <p>6 A Yes. In a sufficient dose.</p> <p>7 Q Okay. Is it fair to say that you have</p> <p>8 not published in the peer-reviewed literature any</p> <p>9 studies on talcum powder products as a causative</p> <p>10 factor for ovarian cancer?</p> <p>11 A That is correct.</p> <p>12 Q Is it fair to say that you have not</p> <p>13 published in the peer-reviewed journal any studies</p> <p>14 with regard to talcum powder products as a risk</p> <p>15 factor for ovarian cancer?</p> <p>16 A That's correct.</p> <p>17 Q Is it fair to say to say that there are</p> <p>18 no publications in your peer-reviewed literature</p> <p>19 on the subject of talcum -- of talc as a source of</p> <p>20 asbestos fibers?</p> <p>21 MS. BROWN: Objection. Counsel, I think</p> <p>22 you just misspoke. Do you mean on his CV?</p> <p>23 MS. PARFITT: I'm sorry? I did.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Is it fair to say --</p>	<p style="text-align: right;">Page 128</p> <p>1 A Right, are there -- no.</p> <p>2 Q Okay. I noted in your CV or in some of</p> <p>3 the readings that you are currently involved in</p> <p>4 some clinical trials.</p> <p>5 Did I -- did I get that correct?</p> <p>6 A I have been involved in trials.</p> <p>7 Q Something recent?</p> <p>8 A Oh, all the time.</p> <p>9 Q Okay. Are you currently involved in any</p> <p>10 clinical trial --</p> <p>11 A Yeah.</p> <p>12 Q -- trials?</p> <p>13 Okay. Do any of them deal with the</p> <p>14 subject of asbestos?</p> <p>15 A No.</p> <p>16 Q Do any of your trials or research deal</p> <p>17 with the subject of talcum powder products?</p> <p>18 A No.</p> <p>19 Q All right. Do you currently have</p> <p>20 ongoing any research work in the area of asbestos?</p> <p>21 MS. BROWN: Objection to the form.</p> <p>22 THE WITNESS: No.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Do you currently have ongoing in any of</p> <p>25 your research work on the topic of mesothelioma?</p>
<p style="text-align: right;">Page 127</p> <p>1 MS. PARFITT: Thank you.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Is it fair to say that there are no</p> <p>4 peer-reviewed publications in your CV that discuss</p> <p>5 the subject as -- of talc as a source of asbestos</p> <p>6 fibers?</p> <p>7 A Correct.</p> <p>8 Q Is it fair to say there are no</p> <p>9 publications in a peer-reviewed journal contained</p> <p>10 in your curriculum vitae regarding the association</p> <p>11 or relationship between talcum powder products and</p> <p>12 ovarian cancer?</p> <p>13 MS. BROWN: Objection to the form of the</p> <p>14 question.</p> <p>15 THE WITNESS: Correct.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Are there any publications in --</p> <p>18 peer-reviewed publications on your curriculum</p> <p>19 vitae regarding the association or relationship</p> <p>20 between asbestos and ovarian cancer?</p> <p>21 MS. BROWN: Objection. Asked and</p> <p>22 answered.</p> <p>23 THE WITNESS: You said are there any --</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Asbestos.</p>	<p style="text-align: right;">Page 129</p> <p>1 A No.</p> <p>2 Q Do you currently have any research work</p> <p>3 ongoing on the topic of talcum powder products?</p> <p>4 A No.</p> <p>5 Q Do you currently have any research in</p> <p>6 the works with regard to work on -- work on</p> <p>7 ovarian cancer?</p> <p>8 A No.</p> <p>9 MS. BROWN: Objection to the form.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Okay. Would it be fair to say that the</p> <p>12 only report that you have prepared on the topic of</p> <p>13 talcum powder products and ovarian cancer would be</p> <p>14 your litigation report --</p> <p>15 MS. BROWN: Object --</p> <p>16 BY MS. PARFITT:</p> <p>17 Q -- in the multidistrict litigation?</p> <p>18 MS. BROWN: Objection to the form,</p> <p>19 misstates his testimony.</p> <p>20 THE WITNESS: I doubt it's the only</p> <p>21 report. But I certainly did prepare a report for</p> <p>22 this.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. How many reports have you</p> <p>25 prepared on the issue of talcum powder products</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 130</p> <p>1 and ovarian cancer?</p> <p>2 MS. BROWN: Objection to the form.</p> <p>3 Litigation?</p> <p>4 MS. PARFITT: Litigation reports.</p> <p>5 THE WITNESS: Like less than ten, and --</p> <p>6 and I may be getting the terminology wrong. I</p> <p>7 think there's like a couple of affidavits that I</p> <p>8 think to me are like a report. So I don't know --</p> <p>9 BY MS. PARFITT:</p> <p>10 Q That's a good clarification.</p> <p>11 MS. BROWN: Well, let him finish. Let</p> <p>12 him finish.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q I was trying to clarify for you, Doctor.</p> <p>15 MS. BROWN: Right, but just let him</p> <p>16 finish and then you can clarify.</p> <p>17 MS. PARFITT: Counsel, I will. Please.</p> <p>18 THE WITNESS: But -- but that's what I</p> <p>19 meant, so there's -- there's other things that</p> <p>20 I've sort of written in the litigation work that</p> <p>21 are other than just this report that we're looking</p> <p>22 at here today.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. So your understanding of what you</p> <p>25 have prepared in written form on talcum powder</p>	<p style="text-align: right;">Page 132</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Okay. So the record is clear and I'm</p> <p>3 clear --</p> <p>4 A Yeah.</p> <p>5 Q -- the only report that you have</p> <p>6 prepared dealing with the -- your evaluation of</p> <p>7 the epidemiology on talcum powder products and</p> <p>8 ovarian cancer is the report that we have marked</p> <p>9 as exhibit -- I guess we haven't had it marked</p> <p>10 yet, but is the report that you filed in this</p> <p>11 case; is that right?</p> <p>12 MS. BROWN: Objection. Misstates his</p> <p>13 testimony.</p> <p>14 MS. MILLER: When you say "report," do</p> <p>15 you mean depositions?</p> <p>16 MS. PARFITT: Counsel, I -- I know --</p> <p>17 we'll get to it. You'll get a -- you'll get a</p> <p>18 question.</p> <p>19 MS. MILLER: It's not about us having a</p> <p>20 question. It's about you asking fair questions.</p> <p>21 MR. TISI: Well, it's not -- her job --</p> <p>22 I'm going to jump in here because --</p> <p>23 MS. PARFITT: Okay. Right.</p> <p>24 MR. TISI: -- now you're double teaming.</p> <p>25 I assume you have competent counsel defending this</p>
<p style="text-align: right;">Page 131</p> <p>1 products and ovarian cancer would be, one,</p> <p>2 affidavits. Correct?</p> <p>3 A Correct.</p> <p>4 Q And two, a legal expert report or more?</p> <p>5 MS. BROWN: Form.</p> <p>6 THE WITNESS: Correct.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Okay. Do you know whether or not you</p> <p>9 have prepared any legal expert reports like the</p> <p>10 one you prepared here in the MDL?</p> <p>11 MS. BROWN: Objection to the form.</p> <p>12 THE WITNESS: Well, on any topic?</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Affidavits -- no, on ovarian cancer and</p> <p>15 talcum powder products.</p> <p>16 A I don't think I --</p> <p>17 MS. BROWN: I object.</p> <p>18 THE WITNESS: I'm sorry.</p> <p>19 Yeah, I don't know if I've completed</p> <p>20 another -- another report, although I'm just</p> <p>21 trying to think if there was like -- like a case-</p> <p>22 specific report that might have had something in</p> <p>23 it. I mean not a report like this one, meaning</p> <p>24 where -- where the whole topic is just about</p> <p>25 the -- the epidemiology and so forth.</p>	<p style="text-align: right;">Page 133</p> <p>1 deposition. Honestly, you did this last week, and</p> <p>2 you've done it in every deposition, and you in</p> <p>3 particular, and you have a real problem with</p> <p>4 obstructing depositions. You need to stop.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Okay. Dr. Diette, I'll try and break it</p> <p>7 down, and I'm just trying to -- this isn't a trick</p> <p>8 question. So you let me know if you don't</p> <p>9 understand my question.</p> <p>10 MS. BROWN: And, Counsel, in all</p> <p>11 seriousness, in an effort to help, are you meaning</p> <p>12 to include or exclude the Ingham affidavit, which</p> <p>13 I think is the --</p> <p>14 MS. PARFITT: I haven't gotten to it. I</p> <p>15 really haven't gotten to it. That's -- that's --</p> <p>16 I'm hoping that the doctor knows what he -- what</p> <p>17 he's filed.</p> <p>18 Let's have marked as Plaintiffs' Exhibit</p> <p>19 No. 10.</p> <p>20 (Diette Exhibit No. 10 was marked</p> <p>21 for identification.)</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Okay. Dr. Diette, let me present you</p> <p>24 with an "Expert Report of Gregory Diette for</p> <p>25 General Causation Daubert Hearing." Okay.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 134</p> <p>1 A That's this --</p> <p>2 Q Do you see that?</p> <p>3 A That's this one for here?</p> <p>4 Q Correct.</p> <p>5 A Yes.</p> <p>6 Q All right. Now, you've identified on</p> <p>7 the record that the report I have handed you,</p> <p>8 which is Exhibit No. 10, is a copy of your federal</p> <p>9 court expert report in the matter of -- dealing</p> <p>10 with the issues of talc and ovarian cancer,</p> <p>11 correct?</p> <p>12 A Exactly right.</p> <p>13 Q And in addition to that report, you have</p> <p>14 prepared some affidavits in the past also</p> <p>15 addressing the topic of talcum powder products and</p> <p>16 ovarian cancer, correct?</p> <p>17 A That's correct.</p> <p>18 Q Okay. Have you prepared any reports on</p> <p>19 talcum powder products and ovarian cancer outside</p> <p>20 of the legal context?</p> <p>21 MS. BROWN: Objection to the form.</p> <p>22 THE WITNESS: No.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. And have you provided any other</p> <p>25 type of written report in a legal context, aside</p>	<p style="text-align: right;">Page 136</p> <p>1 BY MS. PARFITT:</p> <p>2 Q That's correct.</p> <p>3 A Oh, yeah, so then, no, nothing --</p> <p>4 nothing for which I've been disclosed.</p> <p>5 Q Okay. But I take it that you have been</p> <p>6 retained -- you're currently retained to work on</p> <p>7 some other cases other than talcum powder products</p> <p>8 and ovarian cancer, is that correct, by Johnson &</p> <p>9 Johnson?</p> <p>10 MS. BROWN: Counsel, I'm going to -- to</p> <p>11 the extent you're asking about consulting</p> <p>12 engagements, I'm going to instruct him not to</p> <p>13 answer.</p> <p>14 BY MS. PARFITT:</p> <p>15 Q No, I'm asking this: Are you an expert</p> <p>16 on behalf of Johnson & Johnson and asbestos and --</p> <p>17 and ovarian cancer cases?</p> <p>18 A So there's a subtlety there, right,</p> <p>19 because -- I mean you may call this an asbestos</p> <p>20 and ovarian cancer case. I think it's a talcum</p> <p>21 powder and ovarian cancer case.</p> <p>22 Q Okay.</p> <p>23 A There's nothing that's about asbestos</p> <p>24 separately from what we're talking about here.</p> <p>25 Q Fair enough. Have you been retained by</p>
<p style="text-align: right;">Page 135</p> <p>1 from affidavits and the MDL report that you have</p> <p>2 in front of you?</p> <p>3 MS. BROWN: Form.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q On talcum powder products and ovarian</p> <p>6 cancer. I'm just trying to find out your world.</p> <p>7 A No, I understand. And I'm not sure if</p> <p>8 there could be like a work in progress. But</p> <p>9 you're talking about completed, completed like</p> <p>10 products like this, right?</p> <p>11 Q Correct.</p> <p>12 A I -- I can't think of another one.</p> <p>13 Q Okay. Do you have another report and/or</p> <p>14 affidavit in progress in the talcum powder</p> <p>15 products cases and ovarian cancer?</p> <p>16 MS. BROWN: Dr. Diette, I'm going to</p> <p>17 instruct you to the extent you're doing any work</p> <p>18 on this issue that is in a consulting nature and</p> <p>19 has not been disclosed, you should not disclose</p> <p>20 that here.</p> <p>21 I assume counsel is only asking for</p> <p>22 situations in which you have been disclosed as an</p> <p>23 expert, and with that, you can answer the</p> <p>24 question.</p> <p>25 THE WITNESS: Is that right?</p>	<p style="text-align: right;">Page 137</p> <p>1 Johnson & Johnson to testify as a legal expert in</p> <p>2 any talcum powder product cases and meso- --</p> <p>3 mesothelioma?</p> <p>4 A Yes.</p> <p>5 Q Okay. Are you currently an expert in</p> <p>6 any of those cases?</p> <p>7 A Yes.</p> <p>8 Q How many?</p> <p>9 MS. BROWN: And again, Doctor, to the</p> <p>10 extent you've been disclosed, you can answer the</p> <p>11 question.</p> <p>12 THE WITNESS: So I don't -- I don't know</p> <p>13 the count then. I would estimate ten, but I could</p> <p>14 be off by a couple.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Have you given depositions in those</p> <p>17 cases yet?</p> <p>18 A In some cases I have.</p> <p>19 Q Okay. Is this the first deposition that</p> <p>20 you have given in talcum powder products and</p> <p>21 ovarian cancer?</p> <p>22 MS. BROWN: Objection.</p> <p>23 THE WITNESS: I don't think so.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. Did you give testimony in the</p>

35 (Pages 134 to 137)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 138</p> <p>1 Ingham case?</p> <p>2 A I did.</p> <p>3 Q Okay. Did you testify at trial at the</p> <p>4 Ingham case?</p> <p>5 A I did not.</p> <p>6 Q Okay. Is there any other case other</p> <p>7 than the Ingham case where you have given</p> <p>8 deposition in an ovarian cancer and a talcum</p> <p>9 powder case?</p> <p>10 A I think there's at least one other one.</p> <p>11 Q Okay. Do you remember the name of it?</p> <p>12 A I don't. I could look at my testimony</p> <p>13 list and see if I can figure it out.</p> <p>14 Q Okay. And we'll have that marked as</p> <p>15 well. Why don't we have that marked as Diette</p> <p>16 Exhibit -- it's part of your exhibit number --</p> <p>17 it's part of your report, but we'll have it marked</p> <p>18 as a separate exhibit.</p> <p>19 (Counsel conferring.)</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Let me show you what's -- we'll have</p> <p>22 marked as Exhibit No. 11.</p> <p>23 (Diette Exhibit No. 11 was marked</p> <p>24 for identification.)</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 140</p> <p>1 yes.</p> <p>2 Q Okay. The last date I have here is</p> <p>3 September 28, '18.</p> <p>4 A No. It should go further.</p> <p>5 MS. BROWN: We have another page,</p> <p>6 Counsel.</p> <p>7 MS. PARFITT: Okay.</p> <p>8 THE WITNESS: I think it's two-sided, so</p> <p>9 it's the back of that page.</p> <p>10 MS. PARFITT: Okay. Well --</p> <p>11 MS. BROWN: Do you want my copy?</p> <p>12 MS. PARFITT: That would be great. I</p> <p>13 appreciate that. I will give it right back to</p> <p>14 you.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. All right. So the last date is</p> <p>17 February 22nd, 2019; is that correct?</p> <p>18 A That is.</p> <p>19 Q All right. Are you able to circle for</p> <p>20 me which cases are cases in which you have been</p> <p>21 retained as an expert in the -- on the topic of</p> <p>22 talcum powder products and ovarian cancer?</p> <p>23 MS. BROWN: Objection to the form.</p> <p>24 You can answer to the extent you know,</p> <p>25 Doctor.</p>
<p style="text-align: right;">Page 139</p> <p>1 Q All right. Let me show you what's</p> <p>2 Exhibit 11.</p> <p>3 MS. PARFITT: We have a copy for</p> <p>4 counsel.</p> <p>5 MS. BROWN: Thank you.</p> <p>6 MR. ROSEN: I think there's --</p> <p>7 THE WITNESS: Oh, there's two.</p> <p>8 MS. PARFITT: Oh, okay, we'll take one</p> <p>9 back. Thank you. Okay. Very good.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Dr. Diette, does this represent an</p> <p>12 accurate list of cases in which you have been</p> <p>13 retained as an expert since I believe 2014?</p> <p>14 A It is.</p> <p>15 Q All right. Are there any additions to</p> <p>16 this list of cases --</p> <p>17 A I'm sorry.</p> <p>18 Q -- where you've given testimony?</p> <p>19 A I'm sorry. I think I -- I wasn't paying</p> <p>20 attention to your last question.</p> <p>21 Q That's all right.</p> <p>22 A Did you say is this a list of cases that</p> <p>23 I provided depositions?</p> <p>24 Q Expert testimony.</p> <p>25 A Expert testimony. Then the answer is</p>	<p style="text-align: right;">Page 141</p> <p>1 THE WITNESS: I actually don't. I'd</p> <p>2 have to look it up to figure out if I'm right that</p> <p>3 there is one on here, but I don't know -- and</p> <p>4 other than Ingham, right?</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Yes, sir.</p> <p>7 A Other than Ingham, yeah, so I -- I'm not</p> <p>8 sure. I can't tell.</p> <p>9 Q All right. Have you -- we talked about</p> <p>10 your peer-reviewed publications. Are any of your</p> <p>11 public -- peer-reviewed publications discussing</p> <p>12 cohort studies?</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 THE WITNESS: So some of them are cohort</p> <p>15 studies.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q But you have performed --</p> <p>18 MS. BROWN: Let him answer, please.</p> <p>19 MS. PARFITT: Sure.</p> <p>20 THE WITNESS: That I performed, yes.</p> <p>21 BY MS. PARFITT:</p> <p>22 Q All right. So in your carrier as a</p> <p>23 medical doctor, you have published cohort studies?</p> <p>24 A I have.</p> <p>25 Q What have been the general topics of</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 142</p> <p>1 those cohort studies?</p> <p>2 A Generally speaking, things related to</p> <p>3 respiratory diseases and -- and things people</p> <p>4 inhale.</p> <p>5 Q All right. Have you published case-</p> <p>6 control studies?</p> <p>7 A I don't know. I can't think of one. It</p> <p>8 doesn't mean that there isn't one, but I'm -- I</p> <p>9 can't think of a case-control study.</p> <p>10 Q All right. Is it fair to say that none</p> <p>11 of the published cohort studies address the issue</p> <p>12 of talcum powder products and ovarian cancer?</p> <p>13 A Correct.</p> <p>14 Q And is it fair to say that none of the</p> <p>15 cohort studies that you published address the</p> <p>16 issue of talcum powder products and mesothelioma?</p> <p>17 A Correct.</p> <p>18 Q Is it fair to say that none of the</p> <p>19 cohort studies that you have published address the</p> <p>20 issue of asbestos and mesothelioma?</p> <p>21 A Correct.</p> <p>22 Q Is it fair to say that -- that the</p> <p>23 majority of your publications in your -- listed in</p> <p>24 your curriculum CV and those that you said you</p> <p>25 have published since 2017 deal primarily in the</p>	<p style="text-align: right;">Page 144</p> <p>1 MS. BROWN: Wait. Hold on. Is that a</p> <p>2 question?</p> <p>3 MS. PARFITT: Mm-hmm.</p> <p>4 MS. BROWN: I didn't understand that.</p> <p>5 If you understood it, you can answer.</p> <p>6 THE WITNESS: Well, the papers I was</p> <p>7 thinking about had to do with methods and</p> <p>8 quality -- quality assessment in terms of</p> <p>9 healthcare.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Okay.</p> <p>12 A I don't know if I've published anything</p> <p>13 on epi methods, meaning like, you know, the topic</p> <p>14 of a case-control study or --</p> <p>15 Q Right.</p> <p>16 A -- cohort studies, things of that sort.</p> <p>17 Q So it would be fair to say that you have</p> <p>18 not published in a peer-reviewed journal a paper</p> <p>19 on study designs, correct?</p> <p>20 MS. BROWN: Objection to the form.</p> <p>21 THE WITNESS: I would have to look back</p> <p>22 and see. I mean it's -- it's possible I've been</p> <p>23 involved in something that -- that -- I mean it's</p> <p>24 just hard to remember. It's 200 plus papers,</p> <p>25 so --</p>
<p style="text-align: right;">Page 143</p> <p>1 research interests of lung disease, COPD,</p> <p>2 asthma --</p> <p>3 MS. BROWN: Objection --</p> <p>4 BY MS. PARFITT:</p> <p>5 Q -- pulmonary medicine, lung diseases?</p> <p>6 MS. BROWN: Objection to the form.</p> <p>7 THE WITNESS: There's certainly plenty</p> <p>8 there. You know, I get different feedback from</p> <p>9 different people who look at my CV to tell whether</p> <p>10 or not it's, you know, all that or whether there's</p> <p>11 other things. I think people read into it what</p> <p>12 they -- what they see. Because there's -- you</p> <p>13 know, there's ICU research topics, there's</p> <p>14 procedure-related topics, there's radiology</p> <p>15 topics. I mean there's all -- all sorts of</p> <p>16 different things besides those.</p> <p>17 BY MS. PARFITT:</p> <p>18 Q Okay. Do you publish on methods and</p> <p>19 methodology?</p> <p>20 MS. BROWN: Form.</p> <p>21 THE WITNESS: So I think there's a</p> <p>22 couple of methods -- methods related papers.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Papers that deal primarily with</p> <p>25 epidemiological methodology?</p>	<p style="text-align: right;">Page 145</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Right. So nothing you can remember</p> <p>3 today.</p> <p>4 A Correct.</p> <p>5 Q Okay. And have you published on the</p> <p>6 Bradford Hill factors?</p> <p>7 MS. BROWN: Form.</p> <p>8 MR. LOCKE: Objection.</p> <p>9 THE WITNESS: So I've not written a</p> <p>10 paper about Bradford Hill.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q All right. In any of the 200 papers</p> <p>13 that you have published in a peer-reviewed</p> <p>14 journal, do you set forth in those papers the</p> <p>15 Bradford Hill framework?</p> <p>16 MS. BROWN: Objection to the form of the</p> <p>17 question.</p> <p>18 THE WITNESS: You couldn't do it.</p> <p>19 Right. I mean, it's -- the papers that I write</p> <p>20 are primary research papers, and that framework</p> <p>21 doesn't belong in those papers, but we articulate</p> <p>22 the -- the issues that are -- that are relevant</p> <p>23 for a Bradford Hill analysis.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. Well, in this expert report that</p>

Gregory B. Diette, M.D.

Page 146	Page 148
<p>1 you did file in the federal court, you stated</p> <p>2 specifically that you followed the Bradford Hill</p> <p>3 framework. Do you recall saying that?</p> <p>4 A I -- I do. There was more to it, but it</p> <p>5 included that.</p> <p>6 Q Okay. So what I'm asking you, in any of</p> <p>7 the papers, whether they be cohort study, case</p> <p>8 control, other research and scientific</p> <p>9 publications that you've listed on your curriculum</p> <p>10 vitae, have you stated in those papers that you</p> <p>11 are following or are guided by the Bradford Hill</p> <p>12 framework?</p> <p>13 MS. BROWN: Objection. He just answered</p> <p>14 that.</p> <p>15 THE WITNESS: Yeah, it's sort of baked</p> <p>16 into what we do. So it's like in -- I mean the</p> <p>17 answer is no, generally, but -- but we include</p> <p>18 things in a way that they fit with what Bradford</p> <p>19 Hill considerations are. But there's not one that</p> <p>20 was called like the Bradford Hill approach or</p> <p>21 something.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Okay. And by --</p> <p>24 MS. BROWN: Let him finish.</p> <p>25 Were you finished, Doctor?</p>	<p>1 different than what you asked? Because I'm</p> <p>2 just --</p> <p>3 BY MS. PARFITT:</p> <p>4 Q It is.</p> <p>5 This would be some original research</p> <p>6 that you might be -- got a funding or a grant or</p> <p>7 something.</p> <p>8 A I see. Nothing like that.</p> <p>9 Q Okay. Have you received any funds --</p> <p>10 any funding or any grants to study mesothelioma?</p> <p>11 A No.</p> <p>12 Q Have you received any funding or grants</p> <p>13 to study asbestos?</p> <p>14 A No.</p> <p>15 Q Have you received any funding or grants</p> <p>16 to study talcum powder products and their</p> <p>17 association with ovarian cancer?</p> <p>18 MS. BROWN: Objection to the form.</p> <p>19 THE WITNESS: No.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Have you ever published in peer-reviewed</p> <p>22 literature a causation analysis or a review</p> <p>23 article asking whether an exposure causes a</p> <p>24 disease?</p> <p>25 MS. BROWN: Objection to the form of the</p>
Page 147	Page 149
<p>1 THE WITNESS: I'm okay. Thank you.</p> <p>2 MS. PARFITT: Thank you.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q Assume I did a search of the word</p> <p>5 "Bradford Hill" in the 167 papers that you have</p> <p>6 published in the peer-reviewed journal, would it</p> <p>7 surprise you if those words did not appear?</p> <p>8 MS. BROWN: Objection to the form.</p> <p>9 THE WITNESS: It wouldn't surprise me,</p> <p>10 but I -- I don't know that it's not there</p> <p>11 somewhere. And I would search more broadly than</p> <p>12 just those 167. I would look at the more recent</p> <p>13 ones too. I mean I can't say that it's not there,</p> <p>14 but there's not a paper about Bradford Hill.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. Have you been involved in any</p> <p>17 original research on asbestos in general?</p> <p>18 MS. BROWN: Objection to the form.</p> <p>19 THE WITNESS: I have not.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Have you -- have you conducted any</p> <p>22 original research on ovarian cancer?</p> <p>23 MS. BROWN: Objection to the form, asked</p> <p>24 and answered.</p> <p>25 THE WITNESS: I guess, I mean -- is it</p>	<p>1 question.</p> <p>2 THE WITNESS: I don't know. I would</p> <p>3 have to look back over. I don't -- like I don't</p> <p>4 know if I would use those words "causation</p> <p>5 analysis," but we certainly write -- did you say</p> <p>6 review article?</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Yes.</p> <p>9 A So I don't write many review articles.</p> <p>10 They're really -- they're really low quality</p> <p>11 academic products for the most part, and so I try</p> <p>12 to focus more on original research.</p> <p>13 Q All right. Well, same question applied</p> <p>14 to original research.</p> <p>15 MS. BROWN: Objection to the form.</p> <p>16 THE WITNESS: Well, it wouldn't be -- I</p> <p>17 mean that wouldn't be an original research</p> <p>18 article.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Okay. Have you ever performed any</p> <p>21 research on the environmental impacts of talcum</p> <p>22 powder products and ovarian cancer?</p> <p>23 MS. BROWN: Objection to the form,</p> <p>24 vague.</p> <p>25 THE WITNESS: No.</p>

38 (Pages 146 to 149)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 150</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Environmental impacts of diseases is</p> <p>3 something -- is a topic that you are interesting</p> <p>4 in, correct?</p> <p>5 A I am.</p> <p>6 Q You've studied the impact of</p> <p>7 environmental effects on lung diseases, correct?</p> <p>8 A I have.</p> <p>9 Q In fact, that's something you continue</p> <p>10 to be interested in, correct?</p> <p>11 A I am.</p> <p>12 Q But you've not studied any environmental</p> <p>13 impacts on ovarian cancer, correct?</p> <p>14 A Correct.</p> <p>15 MS. BROWN: Asked and answered.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Would it be fair to say that prior to</p> <p>18 being retained by Johnson & Johnson sometime in</p> <p>19 2017, you had done no research on the issue of</p> <p>20 talcum powder products and ovarian cancer?</p> <p>21 MS. BROWN: Objection to the form,</p> <p>22 misstates his testimony.</p> <p>23 THE WITNESS: I think it's the same as</p> <p>24 before. Right. I mean you went through each --</p> <p>25 each item, and my answer was no.</p>	<p style="text-align: right;">Page 152</p> <p>1 Q And to give you some -- a reference,</p> <p>2 we'll spend a little time on that before we get</p> <p>3 into your report. All right? Fair?</p> <p>4 A Sounds good.</p> <p>5 Q Okay. What is Medical Science</p> <p>6 Affiliates?</p> <p>7 A I think they -- they call themselves an</p> <p>8 environmental consulting company.</p> <p>9 Q How long have you been involved with</p> <p>10 Medical Science Affiliates?</p> <p>11 MS. BROWN: Form.</p> <p>12 THE WITNESS: So involved, I guess we'll</p> <p>13 have to sort, but I -- I've known about them and</p> <p>14 done some work with them for about ten years.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. And I too want to sort, so let me</p> <p>17 ask you this: When were you first introduced to</p> <p>18 Medical Science Affiliates?</p> <p>19 A Well, I guess if it's ten years, it</p> <p>20 would have been about ten years ago.</p> <p>21 Q And what were -- how did it come about</p> <p>22 that you learned of a group called Medical Science</p> <p>23 Affiliates?</p> <p>24 A There was a woman who worked there</p> <p>25 then -- I don't remember what her name is, she's</p>
<p style="text-align: right;">Page 151</p> <p>1 BY MS. PARFITT:</p> <p>2 Q So it was not until you were retained by</p> <p>3 Johnson & Johnson that you conducted any research</p> <p>4 on the topic of ovarian cancer and talcum powder</p> <p>5 products, correct?</p> <p>6 MS. BROWN: Objection to the form,</p> <p>7 misstates his testimony.</p> <p>8 THE WITNESS: That is right.</p> <p>9 MS. PARFITT: Okay. And is now a good</p> <p>10 time for a bio break or is it --</p> <p>11 MS. PARFITT: Sure.</p> <p>12 THE WITNESS: If you're in the middle of</p> <p>13 something, I --</p> <p>14 MS. PARFITT: No, no, this is fine.</p> <p>15 We'll just move into another area quickly, yeah.</p> <p>16 THE VIDEOGRAPHER: The time is</p> <p>17 11:14 a.m., and we're going off the record.</p> <p>18 (Recess.)</p> <p>19 THE VIDEOGRAPHER: The time is</p> <p>20 11:24 a.m., and we are back on the record.</p> <p>21 BY MS. PARFITT:</p> <p>22 Q All right. Dr. Diette, I want to talk</p> <p>23 for a moment about Medical Science Affiliates.</p> <p>24 All right?</p> <p>25 A Okay.</p>	<p style="text-align: right;">Page 153</p> <p>1 not there anymore -- and she knew a colleague of</p> <p>2 mine, and they were I think at the time looking</p> <p>3 for somebody to take on an epidemiology project, a</p> <p>4 review. And so he -- he sent around like a note</p> <p>5 or talked to us, I don't remember how he did it,</p> <p>6 but to see if anybody was interested in -- in</p> <p>7 doing an epidemiology project.</p> <p>8 Q Who was that colleague?</p> <p>9 A I think it was Hank Fessler, but I could</p> <p>10 be wrong. That's a while ago.</p> <p>11 Q And what is his position within the</p> <p>12 university?</p> <p>13 A He works in pulmonary.</p> <p>14 Q Okay. So you were -- you were then</p> <p>15 engaged by Medical Science Affiliates to do an</p> <p>16 epidemiological report for them?</p> <p>17 MS. BROWN: Objection. Misstates</p> <p>18 testimony.</p> <p>19 THE WITNESS: I don't know about</p> <p>20 engaged. I mean my -- my relationship is as an</p> <p>21 independent contractor. So it's like -- it's not</p> <p>22 like I have an agreement to do anything with them</p> <p>23 or for them. But that's -- that's the place</p> <p>24 where, you know, they organize the materials for</p> <p>25 me to look over and to -- and to do the</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 154</p> <p>1 epidemiological review. 2 BY MS. PARFITT: 3 Q Okay. Your counsel has objected, as you 4 heard, to me obtaining a copy of your agreement, 5 so I'm going to have to ask you a few more 6 questions about this. 7 What is your arrangement with Medical 8 Science Affiliates? Independent contractor? 9 A That's exactly right. 10 MS. BROWN: He just said it. 11 MS. PARFITT: Okay. I understand. You 12 can take your own deposition, Counsel. It's going 13 to show up on the record too, you're rubbing your 14 head. 15 BY MS. PARFITT: 16 Q Medical Science, you have an independent 17 contract relationship, to do what? 18 A I think what it establishes is that I 19 can use their administrative services as kind of 20 like an outside office for me to do work. 21 Q Okay. So that's one role, they're an 22 outside office. You mentioned, though, that they 23 contracted you to also write an epidemiology 24 report. Correct? 25 A It's --</p>	<p style="text-align: right;">Page 156</p> <p>1 Q More 50? 2 A At least 50. 3 Q Okay. And what has been the topic of 4 those reports that you have prepared for Medical 5 Science Affiliates' clients? 6 MS. BROWN: And I'm going to jump in 7 here. To the extent that those projects are 8 governed by confidentiality agreements, I would 9 ask Dr. Diette that you only disclose that which 10 has been disclosed publicly, for example, in court 11 or at a deposition. 12 MS. PARFITT: Please stop coaching the 13 witness. 14 BY MS. PARFITT: 15 Q Can you answer? 16 MS. BROWN: We're trying to protect 17 confidentiality. 18 MS. PARFITT: I get -- 19 MS. BROWN: I'm instructing him on 20 privilege. 21 MS. PARFITT: That's fine. I 22 understood. He can talk now. 23 THE WITNESS: So I would say that most 24 of the work is in the context of what Ms. Brown 25 said, which is that it wasn't for me to share with</p>
<p style="text-align: right;">Page 155</p> <p>1 MS. BROWN: Objection to the form. 2 THE WITNESS: It's incorrect. 3 BY MS. PARFITT: 4 Q Okay. Straighten it out for me. 5 A Well, they didn't contract me to do 6 anything. They asked if I was interested in doing 7 this epidemiologic project for a client that they 8 knew of. 9 Q Okay. That helps me. 10 So Medical Science Affiliates reached 11 out -- requested that you do an epidemiological 12 report for one of their clients. 13 A Exactly right. 14 Q Okay. Over the course of ten years that 15 you've been affiliated as an independent 16 contractor with Medical Science Affiliates, how 17 many times have you prepared a report for one of 18 Medical Science Affiliates' clients? 19 A I don't know. 20 Q More than ten? 21 A Sure. 22 Q More than a hundred? 23 A A hundred would be pushing it. So 24 something in the tens, I would say. But not ten. 25 I mean something higher up in --</p>	<p style="text-align: right;">Page 157</p> <p>1 other people. 2 BY MS. PARFITT: 3 Q All right. Is J&J a client of Medical 4 Science Affiliates? 5 A I don't know what their relationship is, 6 like I don't know if you would call them a client 7 or not. 8 Q Okay. Does Medical Science Affiliates 9 do some work for Johnson & Johnson? 10 MS. BROWN: Objection. Speculation. 11 THE WITNESS: So I can tell you about 12 what they do for me with regard to Johnson & 13 Johnson. I don't know about anything else. 14 BY MS. PARFITT: 15 Q All right. Tell me what you know. 16 A Well, like, for example, like in the 17 cases that we've discussed that involve Johnson & 18 Johnson, they've provided a service by collecting 19 the materials, right. So, for example, like when 20 you see that list of materials that -- that I 21 provided that I reviewed, they will collect those 22 and -- and organize them for me. 23 If there's a need to have a meeting or a 24 phone call, they'll help to set that up, right, so 25 that -- so, for example, for the deposition today,</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 158</p> <p>1 they were able to help sort my -- through my 2 schedule, you know, with me, and figure out a day 3 or days, I don't remember what we offered, things 4 of that sort. They'll prepare invoices on my 5 behalf. They'll help edit a report. You know, 6 administrative type things. 7 Q Okay. Let's break that down a little 8 bit. 9 Is it your understanding that Medical 10 Science Affiliates bills Johnson & Johnson -- 11 MS. BROWN: Object -- 12 BY MS. PARFITT: 13 Q -- and invoices them for work? 14 MS. BROWN: Objection to the form, calls 15 for speculation. 16 BY MS. PARFITT: 17 Q If you know. 18 A I don't know where the bill goes because 19 I don't know if it goes to the law firm. Like if 20 it matters to you whether it's directly to Johnson 21 & Johnson or -- I mean I can only guess that, you 22 know, the law firm is not going to pay the bill 23 out of their own pocket. They're probably going 24 to then invoice Johnson & Johnson, but I don't 25 know whether the bill goes directly to Johnson &</p>	<p style="text-align: right;">Page 160</p> <p>1 you said, which is that they billed somebody else 2 for the work that they did. 3 BY MS. PARFITT: 4 Q Do you know who that somebody else is? 5 And I want to remind you you're under oath, 6 Dr. Diette. 7 MS. BROWN: What -- 8 THE WITNESS: What's -- 9 MS. BROWN: Whoa, whoa, whoa. I'm 10 objecting to the implication there. Dr. Diette 11 has done nothing but testify truthfully today. 12 MS. PARFITT: Counsel, objection, form. 13 I'm telling you. 14 BY MS. PARFITT: 15 Q Please go on, Dr. Diette. 16 MS. BROWN: No, but what you just said 17 is inappropriate -- 18 MS. PARFITT: It was not -- 19 MS. BROWN: -- and it violates both the 20 federal rules -- 21 MS. PARFITT: -- violative of anything, 22 Counsel. 23 MS. BROWN: -- as well as deposition 24 protocol. He of course is testifying under oath, 25 and if you're suggesting something otherwise,</p>
<p style="text-align: right;">Page 159</p> <p>1 Johnson or whether it goes to the law firm. 2 Q All right. 3 MS. BROWN: And, Doctor, counsel doesn't 4 want you to guess, so just answer the question the 5 best -- 6 BY MS. PARFITT: 7 Q Dr. Diette, if they -- Medical Science 8 Affiliates collects material for you -- as you say 9 they did, correct? 10 A That's correct. 11 Q -- do they bill you or do they bill 12 someone else? 13 MS. BROWN: Objection to the form. 14 THE WITNESS: They bill someone else. 15 BY MS. PARFITT: 16 Q Okay. So when you testified that J&J -- 17 excuse me, when you testified that you had 18 assistance with regard to the preparation of some 19 of the materials that accompany your report, that 20 was work that you contracted with Medical Service 21 Affiliates to do, and they didn't bill you, they 22 billed somebody else, correct? 23 MS. BROWN: Objection to the form. 24 THE WITNESS: I don't know if 25 "contracted" is right, but -- but they did what</p>	<p style="text-align: right;">Page 161</p> <p>1 that's wildly inappropriate. 2 MS. PARFITT: Counsel, let the Court 3 decide if it's -- I think the Court might decide 4 that your objections and your manner today are 5 wildly inappropriate. 6 BY MS. PARFITT: 7 Q So, Dr. Diette, so we can move forward, 8 do you remember the question? 9 A I remember it, but I think I already 10 answered it. It's -- I don't have a better answer 11 than what I gave you before. 12 Q You don't know who Medical Science 13 billed for the services they rendered to you? 14 A Well, let's look at the invoice if we 15 want to. If it's on the top of that, then I 16 might -- 17 Q It's been blacked out, Dr. Diette. 18 A So it's either a law firm or it's 19 Johnson & Johnson. I don't know whether it's one 20 or the other. 21 MS. BROWN: Counsel, you're 22 misrepresenting the documents. It's very clear 23 who they sent the bill to on the face of the 24 invoice, and it has not been redacted for 25 work-product privilege.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 162</p> <p>1 BY MS. PARFITT:</p> <p>2 Q What I want to understand, for purpose</p> <p>3 of the expert report you prepared in this</p> <p>4 litigation, I want you to tell me, if you will,</p> <p>5 every service that Medical Science Affiliates</p> <p>6 performed for you.</p> <p>7 A I don't think I can give you a full</p> <p>8 list. I think that the -- go ahead.</p> <p>9 Q No, no, please, go ahead.</p> <p>10 A All right. So I think the category of</p> <p>11 things that I told you about before are the kinds</p> <p>12 of things that they -- that they did in this case.</p> <p>13 I don't know if I mentioned like arranging like a</p> <p>14 phone call. Like if I was going to have a phone</p> <p>15 call, they would arrange that. Help with -- I</p> <p>16 already talked about editing -- editing reports</p> <p>17 and -- I can't think of another service they did,</p> <p>18 but that's what I can think of right now.</p> <p>19 Q Okay. Did Medical Science Affiliates</p> <p>20 research the scientific literature for you in</p> <p>21 preparation for some of the information contained</p> <p>22 in your expert report?</p> <p>23 A I don't -- I don't think they did any of</p> <p>24 that. I mean, they've -- they've done searches in</p> <p>25 the past on other -- other topics, but I don't</p>	<p style="text-align: right;">Page 164</p> <p>1 something else with the papers?</p> <p>2 Q I'll break it down. Did they do a</p> <p>3 literature search for you?</p> <p>4 A Yeah, and that's what I don't remember.</p> <p>5 So I'm just saying that they've done that at my</p> <p>6 request in the past. But not -- not too much. I</p> <p>7 mean it's actually not that helpful, because I --</p> <p>8 I find it easier to do it myself.</p> <p>9 Q Whether it was helpful or not, my</p> <p>10 question is, did Medical Science Affiliates do any</p> <p>11 literature research for you in -- on the topic of</p> <p>12 talcum powder products and ovarian cancer?</p> <p>13 A I can't give you a better answer. I</p> <p>14 mean I -- I think it sounds to me like you keep</p> <p>15 asking the same thing, and it -- my answer is I'm</p> <p>16 not -- I'm not sure. Like they may have gathered</p> <p>17 a couple of papers, I don't remember if they did</p> <p>18 or not. They certainly didn't do the search, like</p> <p>19 I didn't commission anybody to do like -- like the</p> <p>20 search.</p> <p>21 Q Okay. And how would they deliver that</p> <p>22 information to you? Do they e-mail it to you? Do</p> <p>23 they send it to you? What happens?</p> <p>24 A It depends upon how I ask. So it can</p> <p>25 come as a binder, like the binder you have in</p>
<p style="text-align: right;">Page 163</p> <p>1 think they did any for this.</p> <p>2 Q All right. So it's your testimony that</p> <p>3 in the talcum powder/ovarian cancer case, they did</p> <p>4 not do any research of the peer-reviewed</p> <p>5 literature; is that correct?</p> <p>6 A Well, let me be clear, when you talk</p> <p>7 about talcum powder and ovarian cancer -- because</p> <p>8 I have to think back with each -- you know, each</p> <p>9 case or whatever, but we're talking about this</p> <p>10 particular matter as you're asking these questions</p> <p>11 or --</p> <p>12 Q Well, that's a -- that's a great point.</p> <p>13 You got involved in talcum powder and ovarian</p> <p>14 cancer cases sometime in 2017. That's your</p> <p>15 testimony.</p> <p>16 A It is.</p> <p>17 Q All right. So at that point in time</p> <p>18 when you became engaged to work on talcum powder</p> <p>19 products and ovarian cancer, what I'm interested</p> <p>20 in knowing is whether or not, whether it was for</p> <p>21 this report, another report, has Medical Science</p> <p>22 Affiliates done any research work of the</p> <p>23 literature on this topic?</p> <p>24 A And by "research work," does that -- do</p> <p>25 you mean like finding papers or does it mean doing</p>	<p style="text-align: right;">Page 165</p> <p>1 front of you, it could like that, and be hard</p> <p>2 copies. It could be through, you know, an</p> <p>3 electronic mechanism, if there were something to</p> <p>4 share that way.</p> <p>5 Q All right. Did Medical Science</p> <p>6 Affiliates summarize any of those depositions that</p> <p>7 you have listed in your report?</p> <p>8 A I don't -- do I have -- I don't think --</p> <p>9 do I have deposition summaries?</p> <p>10 Q No.</p> <p>11 A Oh, then no.</p> <p>12 Q You have depositions.</p> <p>13 A Then the answer is no.</p> <p>14 Q Okay. Now, what you've provided me are</p> <p>15 reports and depositions of various experts either</p> <p>16 for Johnson & Johnson or for the plaintiff that</p> <p>17 you've indicated you've -- you've put them on your</p> <p>18 reliance list.</p> <p>19 And what I'm questioning is whether or</p> <p>20 not you've had any summaries done of those reports</p> <p>21 by Medical Science Affiliates.</p> <p>22 A No.</p> <p>23 Q Okay. Have they done any summaries of</p> <p>24 any type of information for you in the talcum</p> <p>25 powder products and ovarian cancer?</p>

42 (Pages 162 to 165)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 166</p> <p>1 MS. BROWN: And, Counsel, here I'm going 2 to interject, and to the extent your question -- 3 MS. PARFITT: Objection. Form. 4 MS. BROWN: -- seeks to -- I'm 5 instructing on privilege, which I'm allowed to do 6 under the federal rules and under the -- 7 MS. PARFITT: If it's a privilege 8 issue -- 9 MS. BROWN: -- let me do that. 10 MS. PARFITT: -- it's certainly fine. 11 MS. BROWN: Thanks. So my instruction 12 here will be that, Doctor, you are not under the 13 work-product privilege to disclose any 14 correspondence you've had with MSA, unless it is 15 something on which you rely for your opinions 16 here, and then of course, counsel is entitled to 17 have that information. 18 BY MS. PARFITT: 19 Q With that understanding, how do you 20 answer the question? 21 A Can you say it again because I think I 22 lost it? 23 Q Sure. Let me just have it read back to 24 you here. 25 Has Medical Science Affiliates done any</p>	<p style="text-align: right;">Page 168</p> <p>1 Q Did you use for purposes of your expert 2 report any of the summaries that were -- that were 3 conducted by Medical Science Affiliates that you 4 just spoke about? 5 A See, this is where I -- I don't know if 6 you're trying to confuse me or what, but -- 7 Q No, I'm not. 8 A Okay. So I just want to be clear, 9 because there aren't any summaries for this, 10 right. 11 Q Okay. 12 A So -- and that's why I keep trying to -- 13 I just -- because there's a different answer for 14 what -- what people have done in other matters and 15 what they've done in this matter. There aren't 16 any summaries that I'm aware of to -- to look at. 17 Q All right. Did Medical Science 18 Affiliates help you write your expert report? 19 MS. BROWN: Objection to the form of the 20 question. 21 THE WITNESS: You know, "write" is a -- 22 is a word that can mean a lot of things. They 23 helped me to -- to shape it, like to create the -- 24 the format for it and like edit out typos and 25 things of that sort.</p>
<p style="text-align: right;">Page 167</p> <p>1 summaries of any type of information for you -- or 2 provided any information for you on the talcum 3 powder products and ovarian cancer cases? 4 MS. BROWN: Same instruction. If you're 5 relying on anything they've done, of course, 6 please answer the question. 7 THE WITNESS: So if we're talking about 8 cases -- because that's why I clarified before, 9 we're not talking about this matter. We're 10 talking about ever in any -- in any case? 11 BY MS. PARFITT: 12 Q Ovarian cancer and talcum powder 13 products. 14 A Oh, yeah. No, I understand the words. 15 I'm just trying to make sure whether we're talking 16 about like this -- this matter that we're talking 17 about only or -- or beyond that. 18 Q Has -- has -- beyond that. 19 A So I'm going to say probably they have. 20 That if there are cases where there were like 21 medical records, for example, although I don't 22 think I've gotten any medical records, but they 23 would have provided a summary. If there were 24 deposition transcripts in those other cases, they 25 might well have -- have done that.</p>	<p style="text-align: right;">Page 169</p> <p>1 BY MS. PARFITT: 2 Q Okay. Well, that has -- it means a lot 3 of things as well. So let me ask you -- 4 MS. BROWN: Counsel, just ask the 5 question. 6 MS. PARFITT: Counsel, I'm -- please. 7 MS. BROWN: You can't editorialize like 8 that. It's a question and an answer. 9 BY MS. PARFITT: 10 Q Dr. Diette, what I would like to ask you 11 is, when you say they helped shape your report, 12 what do you mean they helped shape your report? 13 MS. BROWN: Objection. 14 THE WITNESS: What I just said -- I mean 15 what I said after -- after that before. 16 BY MS. PARFITT: 17 Q Is every word in your expert report that 18 you have there in front of you a word that you put 19 in it? 20 MS. BROWN: Objection to the form. 21 THE WITNESS: Well, I don't know. I 22 mean, there's -- there's quotes from people, 23 right, so that those aren't my words, for example. 24 BY MS. PARFITT: 25 Q Well, you know, I'm glad you brought</p>

43 (Pages 166 to 169)

Gregory B. Diette, M.D.

Page 170	Page 172
<p>1 that up. That's a good question.</p> <p>2 A Yeah.</p> <p>3 Q Are the opinions and the writings</p> <p>4 contained in that report words that you selected?</p> <p>5 A Oh, for sure. I mean like the opinions</p> <p>6 and my -- my summaries of things and -- is that</p> <p>7 what we're talking about?</p> <p>8 Q No. No.</p> <p>9 A We're not? All right.</p> <p>10 Q The report is about -- let's see how</p> <p>11 many pages -- it's about 51 pages long, and the</p> <p>12 question I have, with the exception of quotes from</p> <p>13 other people, Dr. Diette, is every word in this</p> <p>14 report a word you chose to put in the report?</p> <p>15 MS. BROWN: Objection to the form.</p> <p>16 THE WITNESS: For sure, yes. Although</p> <p>17 like some of the words, for example, I think might</p> <p>18 come from one of those affidavits that we were</p> <p>19 talking about, right. So it may be like, you</p> <p>20 know, words that I created in a different context</p> <p>21 and then pulled into this.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Okay. Well, then when you say "Medical</p> <p>24 Science Affiliates helped shape," I'm trying to</p> <p>25 get an understanding, what do you mean "shape"?</p>	<p>1 footnotes, like the information that comes from it</p> <p>2 was information that I pulled from the --</p> <p>3 Q Not my question. Who prepared the</p> <p>4 actual footnotes that appear at the bottom of your</p> <p>5 expert report of 58 -- or, excuse me, 51 pages?</p> <p>6 A So like actually put like -- like 110</p> <p>7 and then put like "Siemiatycki dep, 149"?</p> <p>8 Q Or how about put "226, Singh depo, don't</p> <p>9 consistently reduce," and there's a summary, I</p> <p>10 mean who provided that information, what staff?</p> <p>11 MS. BROWN: Objection to the form.</p> <p>12 Misstates his testimony about how the report was</p> <p>13 prepared.</p> <p>14 THE WITNESS: I'm sorry. We're looking</p> <p>15 at number 226.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q By way of example, Dr. Diette.</p> <p>18 A No, no, I'm just -- I'm just trying to</p> <p>19 help because an example helps.</p> <p>20 So I don't know. I mean some -- some</p> <p>21 staff person put that particular -- literally that</p> <p>22 segment in, but like it came from me identifying</p> <p>23 that NSAIDS don't consistently reduce the risk of</p> <p>24 ovarian cancer and wanting to link it there to my</p> <p>25 statement.</p>
Page 171	Page 173
<p>1 A It would look like a disaster if I did</p> <p>2 this myself. So the fact that there are headings,</p> <p>3 that, you know, things don't spill over from one</p> <p>4 page to another. I don't remember if there's a</p> <p>5 table in here, but to not have the table split</p> <p>6 across, to have, you know, references look okay.</p> <p>7 That I'm not good at. So the fact that this, in</p> <p>8 my view, looks like a professional product, that's</p> <p>9 what they -- that's what they've done for me is to</p> <p>10 make it look like that.</p> <p>11 Q Okay. There are multiple footnotes in</p> <p>12 your report to testimony of various experts that</p> <p>13 were retained by the plaintiff.</p> <p>14 A Yeah.</p> <p>15 Q Who prepared those footnotes?</p> <p>16 MS. BROWN: Objection to the form.</p> <p>17 THE WITNESS: Staff somewhere, but --</p> <p>18 BY MS. PARFITT:</p> <p>19 Q I'm sorry.</p> <p>20 A Staff.</p> <p>21 Q Staff?</p> <p>22 A Yes.</p> <p>23 Q What staff?</p> <p>24 A I don't know which staff did it, but I</p> <p>25 mean like the -- if you say who prepared the</p>	<p>1 Q Who's the staff? Staff for MSA?</p> <p>2 A It could be MSA; it could be the law</p> <p>3 firm. I'm not sure which.</p> <p>4 Q Did you dictate to MSA or anyone else</p> <p>5 portions of your expert report, and someone else</p> <p>6 then did the recordation?</p> <p>7 A Somebody else did the --</p> <p>8 Q Did the -- did --</p> <p>9 A The --</p> <p>10 Q Did you dictate any portions of your</p> <p>11 report to anyone?</p> <p>12 A I don't -- I don't do that.</p> <p>13 Q You don't dictate. Okay.</p> <p>14 A No.</p> <p>15 Q Did you spend time on the phone with</p> <p>16 anyone at MSA and discuss what your -- your report</p> <p>17 should look like?</p> <p>18 MS. BROWN: And again, I'm going to</p> <p>19 instruct on work product, that you not reveal the</p> <p>20 substance of any discussions you had regarding</p> <p>21 drafts of this report. Whether or not there was a</p> <p>22 conversation is an appropriate question to answer.</p> <p>23 THE WITNESS: Sure.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q You did?</p>

44 (Pages 170 to 173)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 174</p> <p>1 A Yes.</p> <p>2 Q So you had a conversation --</p> <p>3 A Yes.</p> <p>4 Q -- about the substance of your report,</p> <p>5 correct?</p> <p>6 MS. BROWN: Objection to the form.</p> <p>7 THE WITNESS: Oh, no, you just -- you</p> <p>8 said something else before that. What was the</p> <p>9 question before?</p> <p>10 MS. BROWN: Discuss what your report</p> <p>11 should look like.</p> <p>12 THE WITNESS: Yeah, that's different.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Okay.</p> <p>15 A You changed it to "substance." But I</p> <p>16 mean what it should look like is what I'm talking</p> <p>17 about. It was -- it should look good, right? And</p> <p>18 so there should be like, you know, bold headings</p> <p>19 and there should be spaces where they belong.</p> <p>20 Q What's the name of the contact person</p> <p>21 you interfaced with at MSA?</p> <p>22 A My main one is Maddie Petta --</p> <p>23 Pettenati.</p> <p>24 Q Okay. And how long have you worked with</p> <p>25 Maddie Pettenati?</p>	<p style="text-align: right;">Page 176</p> <p>1 at MSA to help you get your report in order?</p> <p>2 MS. BROWN: Objection to the form,</p> <p>3 misstates the testimony.</p> <p>4 THE WITNESS: I don't recall the amount</p> <p>5 of time. I mean whatever it took. Like some of</p> <p>6 it might be like a two-minute conversation to say</p> <p>7 like, you know, I want to move a section down or</p> <p>8 something. Or, you know, Can you proofread that</p> <p>9 particular paragraph and look for typos? And</p> <p>10 things of that sort.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Did any of the folks at MSA make any</p> <p>13 suggestions with regard to the scientific or</p> <p>14 medical content of your report?</p> <p>15 MS. BROWN: Objection. Instruct not to</p> <p>16 answer on work product. You can discuss -- you</p> <p>17 can answer the question of whether you had any</p> <p>18 conversations, the substance of which is</p> <p>19 privileged, and I'll instruct you not to answer.</p> <p>20 MS. PARFITT: MSA is a third-party</p> <p>21 contractor from what I'm understanding.</p> <p>22 MS. BROWN: No different than if he was</p> <p>23 working with a secretary to format this.</p> <p>24 Conversations about drafts of the report are</p> <p>25 privileged and will not be discussed.</p>
<p style="text-align: right;">Page 175</p> <p>1 A A couple of years.</p> <p>2 Q Okay. Do you work with anyone else over</p> <p>3 at MSA to help you with your reports?</p> <p>4 A Oh, sure.</p> <p>5 MS. BROWN: Objection to the form.</p> <p>6 THE WITNESS: Yeah.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Who?</p> <p>9 A There's a woman named April, Shannon.</p> <p>10 I'm sure there's others too.</p> <p>11 Q What are their backgrounds?</p> <p>12 MS. BROWN: Objection to the form.</p> <p>13 THE WITNESS: Everybody has a -- a</p> <p>14 science background of some sort, like biology</p> <p>15 degrees, things of that sort.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Okay. How much time did you spend with</p> <p>18 the folks at -- the team at MSA for purposes of</p> <p>19 getting your report put together?</p> <p>20 A I don't know. I mean, what do you mean</p> <p>21 by "with"?</p> <p>22 Q Well, we know you've had conversations.</p> <p>23 We know that you have received information with</p> <p>24 regard to shaping your report, and what I want to</p> <p>25 know is, how much time did you spend with the team</p>	<p style="text-align: right;">Page 177</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Doctor, if you can answer the question.</p> <p>3 A Can you say it again? I'm sorry.</p> <p>4 Q Sure. No worries. I'm just getting it</p> <p>5 here.</p> <p>6 Did any of the folks at MSA make any</p> <p>7 suggestions with regard to the scientific or</p> <p>8 medical content of your report?</p> <p>9 MS. BROWN: I'm instructing you not to</p> <p>10 answer that question under the work-product</p> <p>11 privilege.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q Do you keep time records of the time you</p> <p>14 spend with MSA?</p> <p>15 A No.</p> <p>16 Q Okay. Well, I believe you testified at</p> <p>17 the beginning of your deposition that your charge</p> <p>18 per hour is \$485, correct?</p> <p>19 A Well, I was trying -- I was trying to</p> <p>20 make you understand that differently, and you said</p> <p>21 we would talk about it, so maybe we can. My</p> <p>22 charge is \$400 an hour.</p> <p>23 Q All right. Where does the 485 come</p> <p>24 from?</p> <p>25 A It's what I said before, right. They</p>

45 (Pages 174 to 177)

Gregory B. Diette, M.D.

Page 178	Page 180
<p>1 add \$85 when they bill somebody for my time.</p> <p>2 Q Who "they"?</p> <p>3 A MSA.</p> <p>4 Q "They," MSA?</p> <p>5 A Yeah.</p> <p>6 Q All right. So that I get it straight,</p> <p>7 you charge 400 -- \$400 for your time, correct?</p> <p>8 A Correct.</p> <p>9 Q And then your understanding is MSA</p> <p>10 charges an additional \$85 to someone for their</p> <p>11 assistance for you, correct?</p> <p>12 MS. BROWN: Objection to the form, calls</p> <p>13 for speculation.</p> <p>14 THE WITNESS: So it's -- I don't know --</p> <p>15 I don't know how they break it down, because they</p> <p>16 bill for different things, like they bill for</p> <p>17 photocopying, they bill for some administrative</p> <p>18 tasks separately. Whatever it is, it's their</p> <p>19 business model, and they -- they add that amount</p> <p>20 to the hourly rate.</p> <p>21 BY MS. PARFITT:</p> <p>22 Q How much did Medical Science bill for</p> <p>23 their work, do you know?</p> <p>24 MS. BROWN: Objection. Calls for</p> <p>25 speculation.</p>	<p>1 and basically an amount. I don't have --</p> <p>2 A Like it --</p> <p>3 Q -- it's been blacked out.</p> <p>4 A It doesn't matter. I can still --</p> <p>5 MS. BROWN: It's been redacted for work</p> <p>6 product.</p> <p>7 THE WITNESS: I mean I can help you</p> <p>8 understand it if you want.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q All I really want to understand and get</p> <p>11 a better understanding, Dr. Diette, is the types</p> <p>12 of services that MSA provided you in order to</p> <p>13 file this -- prepare this report.</p> <p>14 A Yeah, I -- I listed those.</p> <p>15 Q Okay. Do they help you with all of your</p> <p>16 expert reports?</p> <p>17 A In what?</p> <p>18 Q Does MSA provide any type of service in</p> <p>19 any and all expert reports that you prepare in the</p> <p>20 context of litigation?</p> <p>21 A No.</p> <p>22 Q Okay. Do you have another go-to service</p> <p>23 to help you with the preparation of your expert</p> <p>24 services?</p> <p>25 MS. BROWN: Objection to form.</p>
Page 179	Page 181
<p>1 THE WITNESS: You can tell if we look at</p> <p>2 the -- the invoices.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q Okay. They would bill the same number</p> <p>5 of -- well, let me ask for a clarification. Not</p> <p>6 all your work was done in conjunction with the</p> <p>7 assistance of Medical Science Affiliates, correct?</p> <p>8 MS. BROWN: Objection to the form.</p> <p>9 THE WITNESS: I mostly sat by myself.</p> <p>10 Yeah.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Okay. So the invoices that I have for</p> <p>13 you would not necessarily reflect all of the work</p> <p>14 that Medical Science Affiliates afforded you,</p> <p>15 correct?</p> <p>16 A That's incorrect.</p> <p>17 MS. BROWN: Objection to the form.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Okay.</p> <p>20 A I mean that's what I was trying to offer</p> <p>21 you earlier is to try to understand the -- the</p> <p>22 bills. Because also when you add that comment</p> <p>23 about the amount of money in total, it wasn't all</p> <p>24 money that goes to me.</p> <p>25 Q Yeah. The bills that I have have a date</p>	<p>1 THE WITNESS: No. I do stuff on my own</p> <p>2 as well.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q All right. So there are cases where</p> <p>5 you've done the work by yourself, and there are</p> <p>6 cases like this particular case where you engage</p> <p>7 the services of MSA, correct?</p> <p>8 A That is --</p> <p>9 MS. BROWN: Objection to the form.</p> <p>10 THE WITNESS: -- correct.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Okay. And did MSA edit any of your --</p> <p>13 any of your -- did MSA edit your expert report?</p> <p>14 A Yeah.</p> <p>15 Q Okay. What kind of edits did they make?</p> <p>16 A Well, all sorts. Like I asked them to</p> <p>17 look for typos, for example.</p> <p>18 Q Right.</p> <p>19 A I just happen to be open to page 30 and</p> <p>20 31, and where you see that the -- there's like</p> <p>21 bulleted sections, when I wrote that, it was just</p> <p>22 one long impenetrable paragraph, and so they were</p> <p>23 nice enough to sort of break it into some chunks</p> <p>24 so it would be easier to read.</p> <p>25 Q Okay. Bear with me if I asked this</p>

Gregory B. Diette, M.D.

Page 182	Page 184
<p>1 before, but did MSA ever suggest any new sentences</p> <p>2 or study that you didn't previously insert in your</p> <p>3 paper?</p> <p>4 A I doubt a new study. It could be -- I</p> <p>5 mean we worked -- we worked pretty hard to make</p> <p>6 sure that I have the full list of studies, you</p> <p>7 know, acknowledged, and so if there was something</p> <p>8 I left off -- I mean I don't remember this</p> <p>9 specifically for this, but that would be a normal</p> <p>10 practice, right, like which is to say, you know,</p> <p>11 Oh, I saw in your list of papers that there's a</p> <p>12 Smith paper, should that be on here? Not them</p> <p>13 going out and saying, Oh, I found a Smith paper,</p> <p>14 would you like that on there?</p> <p>15 Q But they might looked at yours and say,</p> <p>16 You -- you missed a study. Fair?</p> <p>17 A Oh, sure.</p> <p>18 MS. BROWN: Objection to the form.</p> <p>19 THE WITNESS: Yeah.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Okay. And they might look at your</p> <p>22 report and say, You missed --</p> <p>23 I think what I'm getting at, Dr. Diette,</p> <p>24 you described their efforts as generally</p> <p>25 editorial. Is that fair?</p>	<p>1 Q And I'm not concerned about the format.</p> <p>2 What I'm concerned about is the substance,</p> <p>3 Dr. Diette, as you can appreciate.</p> <p>4 MS. BROWN: Objection.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q And so what I'm trying to -- to get some</p> <p>7 clarity here is that, other than perhaps providing</p> <p>8 you a study that you may have omitted from your</p> <p>9 report, is there anything else that falls more in</p> <p>10 the substantive area that they provided and</p> <p>11 offered for you?</p> <p>12 A I -- I think I've answered as best I</p> <p>13 can.</p> <p>14 Q Well, why don't we -- let's talk about</p> <p>15 your contact with J&J. When did they first reach</p> <p>16 out to you to talk with you about being an expert</p> <p>17 to defend them in these lawsuits?</p> <p>18 MS. BROWN: Objection to the form of the</p> <p>19 question.</p> <p>20 THE WITNESS: So they never asked me to</p> <p>21 defend them. They -- they asked me to evaluate</p> <p>22 the epidemiologic literature.</p> <p>23 And just to be clear, because it seemed</p> <p>24 like it was tripping us up before trying to talk</p> <p>25 about this, when I talk about J&J, it's lawyers</p>
Page 183	Page 185
<p>1 MS. BROWN: Objection to the form.</p> <p>2 THE WITNESS: I would say administrative</p> <p>3 and editorial.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Okay. So we can agree that it's both</p> <p>6 administrative and editorial?</p> <p>7 MS. BROWN: Objection to the form.</p> <p>8 THE WITNESS: Correct.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q And as I appreciate, in addition to</p> <p>11 perhaps providing you with a study or two that --</p> <p>12 or three, however number, that you might have</p> <p>13 omitted, is there anything substantive like that</p> <p>14 that they did for you for purposes of your expert</p> <p>15 report?</p> <p>16 A I insist that they don't. I tell them</p> <p>17 that I don't want any intellectual input into</p> <p>18 the -- to the stuff that we're working on. Like I</p> <p>19 don't want their -- I don't even know if they have</p> <p>20 opinions, but I don't want their opinions. I</p> <p>21 literally want this to look like a professional</p> <p>22 product, and I want to get it done in a way that I</p> <p>23 can still spend my time -- my other professional</p> <p>24 time on other things. So if I were to try to make</p> <p>25 this look like this, it would take me forever.</p>	<p>1 that are working with J&J as opposed to somebody</p> <p>2 from J&J per se. And so I'll leave it to you guys</p> <p>3 to sort out what that -- what that means.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Fair enough.</p> <p>6 A But -- but the first time would have</p> <p>7 been a lawyer back in 2017 who asked if I would be</p> <p>8 interested in reviewing the epidemiologic</p> <p>9 literature.</p> <p>10 Q Who was that lawyer?</p> <p>11 A Jonathan Cooper.</p> <p>12 Q Okay. Now, at the time that Jonathan --</p> <p>13 or Jonathan Cooper contacted you, did you -- were</p> <p>14 you working with MSA?</p> <p>15 A Obviously, because I said ten years,</p> <p>16 and, you know, this was 2017.</p> <p>17 Q Okay. Did you share with Jonathan</p> <p>18 Cooper that you worked with this MSA company to</p> <p>19 help you prepare your expert reports?</p> <p>20 A He knew about it already, because I</p> <p>21 think the reason he reached out to me is because</p> <p>22 he was impressed with the work I had done in</p> <p>23 other -- other cases.</p> <p>24 Q Okay. Well, when he -- when you say he</p> <p>25 was impressed with you, with the work that you've</p>

Gregory B. Diette, M.D.

Page 186	Page 188
<p>1 done, when he -- let me explore that a little bit.</p> <p>2 When he called you, did you tell him</p> <p>3 that you had previously worked with MSA to help</p> <p>4 you with your expert reports?</p> <p>5 A I didn't have to.</p> <p>6 Q He knew that.</p> <p>7 A Yes.</p> <p>8 Q Okay. How would Mr. Cooper have known</p> <p>9 that you worked with MSA before?</p> <p>10 MS. BROWN: Objection to the form, calls</p> <p>11 for speculation.</p> <p>12 MR. LOCKE: Objection.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q If you know. Seems like you know.</p> <p>15 A Oh, I do. We had -- he and I had worked</p> <p>16 together on other cases.</p> <p>17 Q Okay. What other cases did you work</p> <p>18 with Mr. Cooper on?</p> <p>19 A They were asbestos-related cases with</p> <p>20 plastic or phenolics, like electrical equipment.</p> <p>21 Q Okay. And in those cases that you</p> <p>22 worked with Jonathan on -- or Mr. Cooper on, did</p> <p>23 you utilize the services of MSA as well to help</p> <p>24 you prepare your expert report in those cases?</p> <p>25 A I did.</p>	<p>1 Q Okay. Have they ever listed you on some</p> <p>2 type of website as a consultant for legal</p> <p>3 purposes?</p> <p>4 A Well, I see --</p> <p>5 MS. BROWN: Objection to the form,</p> <p>6 calls for speculation.</p> <p>7 THE WITNESS: -- Mr. Finch is here and</p> <p>8 he --</p> <p>9 THE REPORTER: Excuse me.</p> <p>10 THE WITNESS: Oh, sorry.</p> <p>11 MS. BROWN: Objection to the form, call</p> <p>12 for speculation. Thank you.</p> <p>13 THE WITNESS: Mr. Finch flashed</p> <p>14 something up at a trial to suggest that they had,</p> <p>15 but that wasn't an advertisement for me. It was a</p> <p>16 list of somebody who had credentials that were</p> <p>17 similar to mine.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Okay. Well, my question is, have -- are</p> <p>20 you aware of whether or not Medical Science</p> <p>21 Affiliates has ever advertised your name out in</p> <p>22 the -- the community as someone --</p> <p>23 MS. BROWN: Same objection --</p> <p>24 BY MS. PARFITT:</p> <p>25 Q -- who was a specialist in pulmonology</p>
Page 187	Page 189
<p>1 Q Okay. Has MSA reached out to you and</p> <p>2 engaged or asked if you would engage in assisting</p> <p>3 them on any other projects currently?</p> <p>4 A What do you mean by "currently"?</p> <p>5 Q Well, are you working with MSA on any</p> <p>6 other projects other than the talcum powder</p> <p>7 products and ovarian cancer?</p> <p>8 A Yes.</p> <p>9 Q What projects?</p> <p>10 MS. BROWN: And again, Doctor, to the</p> <p>11 extent that a confidentiality agreement doesn't</p> <p>12 prevent you from disclosing other work that you're</p> <p>13 doing, you can answer the question.</p> <p>14 THE WITNESS: Some cases that relate to</p> <p>15 asbestos and other chemical-related cases.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Okay. Was there a time when you,</p> <p>18 instead of receiving services from MSA, you</p> <p>19 provided services to MSA as an affiliate expert?</p> <p>20 MS. BROWN: Objection to the form of the</p> <p>21 question.</p> <p>22 THE WITNESS: I know they have that word</p> <p>23 "affiliate" in their name. I don't know what that</p> <p>24 means. But I don't provide services to them.</p> <p>25 BY MS. PARFITT:</p>	<p>1 medicine?</p> <p>2 MS. BROWN: Same objection.</p> <p>3 THE WITNESS: I'm not aware that they</p> <p>4 advertise.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Okay. So are there times that Medical</p> <p>7 Science Affiliates reaches out to you and says,</p> <p>8 Dr. Diette, we want you to do a medical -- a</p> <p>9 scientific review for us on a topic?</p> <p>10 A Never.</p> <p>11 Q Okay. They've never done that. You've</p> <p>12 never provided that service for them.</p> <p>13 A They -- they don't ask me to do work for</p> <p>14 them.</p> <p>15 Q Okay. Do their clients ask you to do</p> <p>16 work for them?</p> <p>17 A Of course, that's where we started,</p> <p>18 right, from ten years ago.</p> <p>19 Q Right. And that's what I'm trying to</p> <p>20 figure out.</p> <p>21 MS. BROWN: Let him finish. I don't</p> <p>22 think he was done.</p> <p>23 THE WITNESS: No, that was -- that was</p> <p>24 the description of what I was saying, like how</p> <p>25 the -- the first time that I met them was that</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 190</p> <p>1 they -- there was some, you know, group that</p> <p>2 wanted an epidemiologic review, and they were</p> <p>3 trying to figure out if there were local</p> <p>4 epidemiologists that could take on a task like</p> <p>5 that, and so that's the way it worked.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Okay. So I now get --</p> <p>8 MS. BROWN: He is not done.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q Are you done, Doctor? I thought you</p> <p>11 were.</p> <p>12 A I'll be done.</p> <p>13 Q Okay. So if I appreciate this</p> <p>14 structure, so we can move on, a client, some</p> <p>15 company can reach out to Medical Science</p> <p>16 Affiliates and say, We need some work done and</p> <p>17 research done on a particular area. Will you do</p> <p>18 that for me?</p> <p>19 Medical Science Affiliates will say,</p> <p>20 Yes, we can. And then Medical Science Affiliates</p> <p>21 reaches out to people like you?</p> <p>22 MS. BROWN: Objection to the form.</p> <p>23 THE WITNESS: So I don't know -- I don't</p> <p>24 know when they say, Yes, we can. Like I don't</p> <p>25 know, for example -- like their -- I don't know</p>	<p style="text-align: right;">Page 192</p> <p>1 Q So you never work for MSA; you always</p> <p>2 work for a corporate client?</p> <p>3 MR. LOCKE: Objection.</p> <p>4 MS. BROWN: Objection to the form of the</p> <p>5 question.</p> <p>6 THE WITNESS: So I've never worked for</p> <p>7 MSA.</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Who pays your bills? Law firms?</p> <p>10 MS. BROWN: Objection to the form.</p> <p>11 THE WITNESS: So --</p> <p>12 MS. BROWN: What bills? What are you</p> <p>13 talking about?</p> <p>14 BY MS. PARFITT:</p> <p>15 Q Who pays your bills for doing services</p> <p>16 at the request of MSA?</p> <p>17 MS. BROWN: Objection to the form.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Anybody?</p> <p>20 MS. BROWN: Objection. Can we -- let's</p> <p>21 have one question and let him answer.</p> <p>22 Go ahead.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q And I'll tell you the reason I'm asking,</p> <p>25 Dr. Diette.</p>
<p style="text-align: right;">Page 191</p> <p>1 what their size is, but they may say, Yes, we can,</p> <p>2 and just do it themselves. Right. They have</p> <p>3 other people that I don't work with that work</p> <p>4 there.</p> <p>5 I'm just saying, like you're asking the</p> <p>6 question, so it's like -- so if somebody calls</p> <p>7 them and says, Can you do this work? They may</p> <p>8 well say, Yes, we can do it. They may or may not</p> <p>9 need a content expert or methodologic expert to do</p> <p>10 it. So it -- I assume it depends, but I'm -- I'm</p> <p>11 not familiar with their entire business operation.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q Okay. All I'm trying to find out is --</p> <p>14 is who comes to who, and from what I understand</p> <p>15 your testimony is, a client will reach out to MSA</p> <p>16 and say, We have a project. MSA will determine</p> <p>17 whether or not someone -- someone's expertise is</p> <p>18 needed in order to complete that job, and then MSA</p> <p>19 reaches out to you. Is that fair?</p> <p>20 MR. LOCKE: Objection.</p> <p>21 MS. BROWN: Objection. Speculation.</p> <p>22 THE WITNESS: I like the answer I just</p> <p>23 gave. I mean I think that really was my answer to</p> <p>24 that exact question.</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 193</p> <p>1 MS. BROWN: No, no, no, no. You ask the</p> <p>2 question, he answers. We don't need to know why</p> <p>3 you're asking the question.</p> <p>4 MS. PARFITT: Excuse me.</p> <p>5 MS. BROWN: It's improper. You're not</p> <p>6 going to give a speech, Counsel.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Dr. Diette, we -- has there ever been a</p> <p>9 chance or an opportunity where you have reached</p> <p>10 out to MSA on your own, and say, A client that</p> <p>11 doesn't work or do business with you, MSA, has</p> <p>12 asked me to do a report. Can you help me?</p> <p>13 A Yes.</p> <p>14 Q Okay. So that's one scenario, correct?</p> <p>15 A Correct.</p> <p>16 Q It's some other client has -- some other</p> <p>17 individual or entity has reached out to you and</p> <p>18 said, Dr. Diette, I would like to engage your</p> <p>19 expertise in the legal context. Fair?</p> <p>20 MS. BROWN: Objection to the form.</p> <p>21 THE WITNESS: Or the epidemiologic</p> <p>22 context, but in some context.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. And then you have in turn reached</p> <p>25 out to MSA and said, I need some help.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 194</p> <p>1 MS. BROWN: Objection to the form.</p> <p>2 THE WITNESS: Something like that, yeah.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q Okay. That's one scenario.</p> <p>5 Another scenario is when a corporate</p> <p>6 client, for instance, engages the services of MSA</p> <p>7 to do a project and a particular expertise is</p> <p>8 needed, and MSA then reaches out to folks like</p> <p>9 yourself or folks in other medical specialties.</p> <p>10 Fair?</p> <p>11 MS. BROWN: Objection. Speculation.</p> <p>12 THE WITNESS: So I'm not a lawyer,</p> <p>13 right. So I'm trying to listen carefully to the</p> <p>14 words that you're using, and when you say they</p> <p>15 reach out and they retain MSA, I -- I actually</p> <p>16 don't know if that's actually what happens, right.</p> <p>17 So I gave you an example that --</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Okay.</p> <p>20 A -- they might retain MSA for their own</p> <p>21 purposes, and nobody else gets involved. If like,</p> <p>22 for example, in this case when Jonathan Cooper</p> <p>23 reached out, he wanted to work with me, and MSA</p> <p>24 provided the support services for me to get that</p> <p>25 work done. So I -- I have no idea whether he</p>	<p style="text-align: right;">Page 196</p> <p>1 conflicts checks?</p> <p>2 MS. BROWN: Objection. Speculation.</p> <p>3 Engaged by who?</p> <p>4 BY MS. PARFITT:</p> <p>5 Q When you're engaged by a client, who</p> <p>6 does the conflict --</p> <p>7 MS. BROWN: Same --</p> <p>8 BY MS. PARFITT:</p> <p>9 Q -- conflicts checks for you?</p> <p>10 MS. BROWN: Same objection.</p> <p>11 THE WITNESS: I don't know that anybody</p> <p>12 does conflicts checks. I mean if there is</p> <p>13 somebody, I'm not aware of who that is. If it</p> <p>14 comes up, people will ask me sometimes if I have a</p> <p>15 conflict of interest. Sometimes I'll see a</p> <p>16 complaint, you know, and be asked to look at, you</p> <p>17 know, the names on the complaint.</p> <p>18 It all depends, but I -- I don't even</p> <p>19 know if I know what a conflict checks is, I mean</p> <p>20 if that's a technical term. It's only been --</p> <p>21 it's only been done the way I'm describing, which</p> <p>22 somebody will say to me like, you know, Do you</p> <p>23 have any conflict of interest?</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. You prepared two affidavits that</p>
<p style="text-align: right;">Page 195</p> <p>1 retained MSA per se. I mean that's -- that's</p> <p>2 something for lawyers to kind of sort through.</p> <p>3 Q Well, did Jonathan Cooper go to you</p> <p>4 directly or did Jonathan Cooper go to MSA?</p> <p>5 MS. BROWN: Objection to the form.</p> <p>6 You can answer if you know.</p> <p>7 THE WITNESS: It was kind of both. I</p> <p>8 mean I think we -- we were talking about something</p> <p>9 else one day, and he asked if I would be</p> <p>10 interested in this.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Okay. And did Jonathan Cooper then</p> <p>13 reach out to MSA as well?</p> <p>14 MS. BROWN: Objection. Speculation.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q You said both. That's why I'm asking.</p> <p>17 A Yeah, yeah, I mean --</p> <p>18 MS. BROWN: Same objection.</p> <p>19 THE WITNESS: I don't know how that part</p> <p>20 worked, I mean, but -- but it was pretty clear</p> <p>21 that it was such a big volume of work, that if I</p> <p>22 was going to do it with him that I was going to</p> <p>23 use MSA's services.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q When you're engaged, who does the</p>	<p style="text-align: right;">Page 197</p> <p>1 I'm aware of, one in the Ingham case and one in</p> <p>2 the Forrest. Do you recall doing that back in</p> <p>3 2018?</p> <p>4 A I do.</p> <p>5 Q Okay. Are you aware of any other</p> <p>6 affidavits you prepared in 2018 other than the</p> <p>7 Ingham and the Forrest?</p> <p>8 A I don't think so. But I mean if you</p> <p>9 have one, I would be glad to help confirm it, but</p> <p>10 I can't recall one off the top of my head.</p> <p>11 Q Fair enough. How much did you charge</p> <p>12 for preparation of the Ingham affidavit?</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 THE WITNESS: I don't remember.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q More than 50,000?</p> <p>17 MS. BROWN: Same objection.</p> <p>18 THE WITNESS: So I guess it depends upon</p> <p>19 when we're talking about like me, you know,</p> <p>20 because earlier you were lumping together, you</p> <p>21 know, services that MSA charges for and gets paid</p> <p>22 for. So I don't remember what -- what part I got.</p> <p>23 It wouldn't -- it wouldn't have taken \$50,000</p> <p>24 worth of my time to prepare, you know, the</p> <p>25 affidavit, I don't think. And in part, because,</p>

Gregory B. Diette, M.D.

Page 198	Page 200
<p>1 you know, the input for that was stuff I was 2 already, you know, reading and interpreting 3 otherwise. 4 BY MS. PARFITT: 5 Q All right. How much did you charge for 6 the Forrest report? 7 MS. BROWN: Objection to the form. 8 THE WITNESS: The same -- same answer. 9 I don't know. And in fact, the Forrest report, if 10 it came second, probably not very much because I 11 think it's mostly derivative from the first. I 12 mean I try -- I'm not trying to just, you know, 13 create work to create it. Like if there's 14 something I -- that I like the way it reads, I try 15 to use it again. 16 BY MS. PARFITT: 17 Q Okay. Are you aware, having actually 18 prepared both of those affidavits, they are 19 virtually the same affidavit? Would that surprise 20 you? 21 MS. BROWN: Objection to the form. 22 THE WITNESS: I hope they are. I mean 23 that -- that was the intent. 24 BY MS. PARFITT: 25 Q Okay. Other than the ovarian cancer/</p>	<p>1 products and ovarian cancer. 2 And the question I have is, in any 3 context, when the topic of interest is talcum 4 powder products and ovarian cancer, have you ever 5 been asked by MSA to do any work that's 6 non-pulmonary, other than the ovarian cancer 7 cases? 8 A Related -- 9 MR. LOCKE: Objection. 10 THE WITNESS: Related to talcum powder? 11 BY MS. PARFITT: 12 Q Related to anything. 13 A Well, wait a minute. No, because -- so, 14 first of all, you said has MSA asked me to do it. 15 Like they don't ask me to do stuff. Like they -- 16 it's -- the relationship we described before is 17 what it is. So if it's more general about are 18 there other cases -- 19 Q Yeah. 20 A -- and when you say non-pulmonary, you 21 know, there are cases I've been involved in that 22 have nothing do with talcum powder that are 23 non-pulmonary. 24 So I'm just trying to figure out, 25 there's a lot of different angles to what -- to</p>
Page 199	Page 201
<p>1 talcum powder cases, have you been engaged by 2 anyone else for opinions on a non-pulmonary issue? 3 MS. BROWN: Objection to the form. 4 THE WITNESS: Related to? 5 BY MS. PARFITT: 6 Q Your work with MSA. 7 A No, but you said -- it sounded like 8 there's something missing from the question. 9 Q Sure. Let me -- let me ask it again. 10 Okay. 11 Other than this case involving ovarian 12 cancer and talcum powder products, have you been 13 asked and -- or requested by anyone for your 14 opinions on a topic that was something other than 15 non-pulmonary? 16 MS. BROWN: Objection. Do you mean -- 17 MS. PARFITT: That was non-pulmonary. 18 MS. BROWN: -- to exclude Ingham and the 19 other? When you say "this case," do you mean just 20 the MDL? 21 MS. PARFITT: Yeah. 22 BY MS. PARFITT: 23 Q And I think that's where we're getting 24 hung up. When I say "this case," I'm going to be 25 talking about "this case" being talcum powder</p>	<p>1 what you're asking. 2 Q Sure. 3 A Are you talking about talcum powder 4 cases that are related to something other than 5 ovarian cancer, and something other than a 6 pulmonary -- 7 Q I'll simplify it. Have you ever 8 prepared a report in a -- let me do it this way. 9 Talcum powder products and ovarian 10 cancer have nothing to do with pulmonary medicine, 11 correct? 12 MS. BROWN: Objection to the form. Are 13 we abandoning inhalation as a theory of -- 14 MS. PARFITT: No, we're not, no. 15 MS. BROWN: Okay. 16 THE WITNESS: Then no. I mean, no, 17 meaning that if that's a theory, then that 18 certainly has something to do with pulmonary 19 medicine. 20 BY MS. PARFITT: 21 Q Okay. And I think what I'm really 22 driving at is, it looks as though your focus for 23 the last couple of years has been talcum powder 24 products and ovarian cancer or asbestos and 25 mesothelioma. Is that fair?</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 202</p> <p>1 MR. LOCKE: Objection.</p> <p>2 THE WITNESS: My focus --</p> <p>3 BY MS. PARFITT:</p> <p>4 Q Focus and research --</p> <p>5 MS. BROWN: Objection.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q -- for preparation of expert legal</p> <p>8 reports.</p> <p>9 MS. BROWN: Objection to the form.</p> <p>10 THE WITNESS: I -- I'm either not</p> <p>11 hearing you well or I think things are getting</p> <p>12 jumbled.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Okay.</p> <p>15 A And I --</p> <p>16 Q Probably the -- the latter.</p> <p>17 A No, and I apologize.</p> <p>18 Q It's probably me.</p> <p>19 A I'm not trying to give you a hard time.</p> <p>20 I just mean that -- what I -- what I heard earlier</p> <p>21 is am I working on something with talcum powder</p> <p>22 other than ovarian cancer or other than ovarian</p> <p>23 cancer and something that isn't part of the lung?</p> <p>24 Is that it?</p> <p>25 Q Are you preparing expert reports on a</p>	<p style="text-align: right;">Page 204</p> <p>1 anything --</p> <p>2 Q Do you want to take --</p> <p>3 A No, I'm just wondering. Not</p> <p>4 necessarily, but if it's --</p> <p>5 MS. MILLER: This would be a good time</p> <p>6 for lunch.</p> <p>7 THE WITNESS: Yeah, that's what I'm</p> <p>8 wondering, just if it's going to be --</p> <p>9 MS. BROWN: Yeah, it's up to you. If</p> <p>10 you want to break, counsel will give you a break.</p> <p>11 MS. PARFITT: Whatever you want to do.</p> <p>12 Do you want to take a break now?</p> <p>13 THE WITNESS: It would be nice to -- to</p> <p>14 get a snack, and --</p> <p>15 MS. PARFITT: You want to take a half</p> <p>16 hour and grab --</p> <p>17 THE WITNESS: Would that be okay?</p> <p>18 MS. PARFITT: That's totally fine, yep.</p> <p>19 THE VIDEOGRAPHER: The time is 12:08</p> <p>20 p.m., and we are going off the record.</p> <p>21 (Lunch recess.)</p> <p>22 THE VIDEOGRAPHER: The time is 12:43</p> <p>23 p.m., and we're back on the record.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Good afternoon, Dr. Diette.</p>
<p style="text-align: right;">Page 203</p> <p>1 topic area other than talcum powder products and</p> <p>2 ovarian cancer currently?</p> <p>3 MS. BROWN: Objection. He's not</p> <p>4 answering questions about reports that have not</p> <p>5 been served in cases --</p> <p>6 MS. PARFITT: Understood.</p> <p>7 MS. BROWN: -- where he's not a</p> <p>8 disclosed expert.</p> <p>9 THE WITNESS: You mean in my</p> <p>10 professional life in general?</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Correct.</p> <p>13 A Yes.</p> <p>14 Q Okay. What other areas?</p> <p>15 A Well, that's what we talked about</p> <p>16 before, right. So there was asbestos, there's</p> <p>17 some chemicals, probably like mold and dampness.</p> <p>18 There's malpractice cases. I mean a whole variety</p> <p>19 of different things.</p> <p>20 Q Okay. All right. I want to come to --</p> <p>21 where I want to go is your -- your actual report.</p> <p>22 I want you to take me through -- I'll ask you some</p> <p>23 questions about the process that you went through</p> <p>24 in actually putting this report together.</p> <p>25 A And I don't want to overbreak or</p>	<p style="text-align: right;">Page 205</p> <p>1 A Good afternoon.</p> <p>2 Q All right, Dr. Diette, I'd like to focus</p> <p>3 for a little bit about your -- actually your</p> <p>4 expert report and hopefully get to your opinions</p> <p>5 here soon.</p> <p>6 It's fair to say that this report is --</p> <p>7 this expert report is not a report that you</p> <p>8 prepared in the ordinary course of your activities</p> <p>9 as a pulmonary medicine at Johns Hopkins?</p> <p>10 MS. BROWN: Objection to the form.</p> <p>11 THE WITNESS: That's correct.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q Okay. And are all the opinions which</p> <p>14 you will be sharing with us today, and eventually</p> <p>15 the court and a jury, set forth in your -- your</p> <p>16 expert report?</p> <p>17 MS. BROWN: Form.</p> <p>18 THE WITNESS: I hope so. I mean,</p> <p>19 it's -- there may be like -- like smaller opinions</p> <p>20 that are underpinnings that I didn't capture, but</p> <p>21 I mean the fundamental opinions should be there.</p> <p>22 And assuming nothing different comes out when</p> <p>23 you're asking me about it today, I guess the only</p> <p>24 other thing I'd say is that I don't think that</p> <p>25 I've seen all of the -- the testimony yet in this</p>

Gregory B. Diette, M.D.

Page 206	Page 208
<p>1 case. So I don't know whether that's going to,</p> <p>2 you know, spur some other thought, you know, from</p> <p>3 the other -- other experts who are testifying, but</p> <p>4 aside from that, then this should otherwise be</p> <p>5 complete.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q And obviously if you see something,</p> <p>8 testimony that causes you to change your opinions,</p> <p>9 you will let me know, correct?</p> <p>10 MS. BROWN: Form.</p> <p>11 THE WITNESS: I will.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q All right. Dr. Diette, on the front of</p> <p>14 your report it says "Expert Report of Gregory</p> <p>15 Diette, MD, MHS, For General Causation Daubert</p> <p>16 Hearing." Did you write that?</p> <p>17 A Not this page, no.</p> <p>18 Q All right. Who wrote that?</p> <p>19 MS. BROWN: Objection to the form.</p> <p>20 THE WITNESS: I -- I don't know</p> <p>21 literally. I think this came from the law firm as</p> <p>22 a cover page for me to -- to sign.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q You've testified both in general</p> <p>25 causation case -- as a general causation witness</p>	<p>1 to say that that is your signature on the -- on</p> <p>2 the front page, Gregory Diette?</p> <p>3 A Yes, it is.</p> <p>4 Q And you completed that on February 25th,</p> <p>5 2019, correct?</p> <p>6 A Exactly right.</p> <p>7 Q Okay. And it would also -- is it also</p> <p>8 fair to say that the opinions contained in this</p> <p>9 report are not the opinions of Johns Hopkins</p> <p>10 University?</p> <p>11 A Not as far as I know. I mean they're</p> <p>12 literally just mine.</p> <p>13 Q Have you shared these opinions with any</p> <p>14 of the other members of the Johns Hopkins</p> <p>15 community?</p> <p>16 A No.</p> <p>17 Q All right. Did you run the opinions</p> <p>18 that you have by any of the staff or your</p> <p>19 superiors at Johns Hopkins?</p> <p>20 MS. BROWN: Objection to the form.</p> <p>21 THE WITNESS: No.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Okay. Aside from this expert report and</p> <p>24 the opinions retained herein, have you shared your</p> <p>25 opinions with anyone else outside of the Johns</p>
Page 207	Page 209
<p>1 and as well as a specific causation witness,</p> <p>2 correct?</p> <p>3 A Generally speaking, like in legal cases?</p> <p>4 Q Correct.</p> <p>5 A Yes, I have.</p> <p>6 Q All right. So you understand the</p> <p>7 difference.</p> <p>8 A I hope so, yeah.</p> <p>9 Q Okay. Have you actually testified in an</p> <p>10 asbestos/meso- -- mesothelioma case on giving</p> <p>11 specific causation opinions?</p> <p>12 A Yes.</p> <p>13 Q Okay. Have you also provided general</p> <p>14 causation opinions in a meso/asbestos case?</p> <p>15 A Yes.</p> <p>16 Q Okay. Now, it says Daubert. Do you</p> <p>17 understand what a Daubert hearing is?</p> <p>18 MS. BROWN: Objection to the form.</p> <p>19 THE WITNESS: Probably not the way that</p> <p>20 you do. I have a general -- general sense of</p> <p>21 this, but -- you know, I -- I wouldn't be able to</p> <p>22 answer, you know, a lot of test questions about</p> <p>23 it.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. All right. And would it be fair</p>	<p>1 Hopkins community, regulatory or scientific</p> <p>2 bodies?</p> <p>3 MS. BROWN: Objection to the form.</p> <p>4 THE WITNESS: No. You mean other than</p> <p>5 the lawyers and --</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Correct, other than your lawyers.</p> <p>8 A Oh, yeah, yeah, yeah.</p> <p>9 MS. BROWN: Objection to the form.</p> <p>10 We're not his lawyers.</p> <p>11 THE WITNESS: Right, but I mean but</p> <p>12 lawyers that are involved in this case, I have</p> <p>13 expressed it to, but not those other kinds of</p> <p>14 entities that you described.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. And to be clear, you have not</p> <p>17 shared with the Johns Hopkins community your</p> <p>18 opinions on talcum powder products and ovarian</p> <p>19 cancer.</p> <p>20 MS. BROWN: Objection to the form.</p> <p>21 THE WITNESS: That is correct.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Okay. Let's go to I believe page 2 of</p> <p>24 your report, if you will.</p> <p>25 And take a moment. Do you have that in</p>

Gregory B. Diette, M.D.

Page 210	Page 212
<p>1 front of you?</p> <p>2 A I do. Thank you.</p> <p>3 Q Okay. Is it fair to say that your</p> <p>4 report contains the bases for your opinions as</p> <p>5 well?</p> <p>6 A Yes.</p> <p>7 Q All right. And is it fair the -- do you</p> <p>8 know whether or not this report has answered all</p> <p>9 the questions that J&J asked you to answer for</p> <p>10 them?</p> <p>11 MS. BROWN: Objection. Lacks</p> <p>12 foundation.</p> <p>13 THE WITNESS: Well, I think there's only</p> <p>14 one question, right?</p> <p>15 BY MS. PARFITT:</p> <p>16 Q And what was that question?</p> <p>17 MS. BROWN: Wait. Let him finish.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q What was that question?</p> <p>20 A I'm sorry. So the question was -- was</p> <p>21 really about whether or not the -- what does the</p> <p>22 epidemiologic evidence say about the relationship</p> <p>23 between talcum powder and ovarian cancer.</p> <p>24 Q All right. So let's turn to your</p> <p>25 report, page 2, and I believe --</p>	<p>1 Q Okay. And if you would turn -- be so</p> <p>2 kind to turn to the last page of the report,</p> <p>3 page 51.</p> <p>4 A Okay.</p> <p>5 Q And again, if you would read the first</p> <p>6 paragraph.</p> <p>7 A At the --</p> <p>8 Q And we'll go ahead and put that up on</p> <p>9 the ELMO.</p> <p>10 A Under "Conclusion" or the --</p> <p>11 Q Under the Conclusion, if you will.</p> <p>12 A Yep. The whole thing?</p> <p>13 Q Just that -- just that first</p> <p>14 paragraph -- or first sentence.</p> <p>15 A First sentence. Oh, okay. Yep.</p> <p>16 "It is my opinion, based on my</p> <p>17 qualifications and my extensive review of the</p> <p>18 available epidemiology studies and scientific</p> <p>19 literature, that there is not sufficient evidence</p> <p>20 to conclude that there is a causal relationship</p> <p>21 between perineal talcum powder exposure and</p> <p>22 ovarian cancer."</p> <p>23 Q Okay. And I know you have much to say</p> <p>24 about that, but that is basically the -- the</p> <p>25 general opinion that you're going to be sharing,</p>
Page 211	Page 213
<p>1 MS. PARFITT: And we'll put it up on the</p> <p>2 ELMO here.</p> <p>3 (Counsel conferring.)</p> <p>4 MS. PARFITT: I guess we won't put it up</p> <p>5 on the ELMO here.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Looking at the Summary of Opinions,</p> <p>8 would you please read, if you will, that first</p> <p>9 sentence.</p> <p>10 A Down at the bottom?</p> <p>11 Q Please.</p> <p>12 A "The body of"?</p> <p>13 Q Under "Summary of Opinions."</p> <p>14 A Yep, sure.</p> <p>15 "The body of relevant epidemiological</p> <p>16 evidence does not support a causal connection</p> <p>17 between perineal use of talcum powder products,"</p> <p>18 parentheses, "whatever constituents those products</p> <p>19 may contain in addition to talc," end parentheses,</p> <p>20 "and ovarian cancer."</p> <p>21 Q All right. And then in the next page is</p> <p>22 you talk about the bases for that, correct?</p> <p>23 A I think that's the right way to say the</p> <p>24 bases. I mean it's sort of an elaboration of that</p> <p>25 general -- general opinion.</p>	<p>1 correct?</p> <p>2 A I agree with you, yes.</p> <p>3 Q Okay. Let me show you what we'll have</p> <p>4 marked as 12, Exhibit 12.</p> <p>5 (Counsel conferring.)</p> <p>6 MS. PARFITT: Let me show you, Counsel,</p> <p>7 what we -- what we'll have marked as Exhibit 12.</p> <p>8 There you go.</p> <p>9 (Diette Exhibit No. 12 was marked</p> <p>10 for identification.)</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Doctor, have you seen this before?</p> <p>13 A Let me take a look and see. (Peruses</p> <p>14 document.)</p> <p>15 So generally speaking, yes. The -- the</p> <p>16 only reason I can't say for sure I've literally</p> <p>17 seen this exact version is because that -- not</p> <p>18 that I would know when it was updated otherwise,</p> <p>19 but I don't know who's in charge of all these</p> <p>20 different -- excuse me -- websites that you found</p> <p>21 at Johns Hopkins, and so I don't know, you know,</p> <p>22 whether what I looked at is literally identical to</p> <p>23 what we're looking at here.</p> <p>24 Q All right.</p> <p>25 A But it's approximately something that</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 214</p> <p>1 I've seen.</p> <p>2 Q Okay. Fair.</p> <p>3 Now, this is from the Sidney Kimmel</p> <p>4 Comprehensive Cancer Center, correct?</p> <p>5 A That's right.</p> <p>6 Q And it's entitled "Risk Factors -- Risk</p> <p>7 Factors" -- excuse me -- and Symptoms." Do you</p> <p>8 see that?</p> <p>9 A I do.</p> <p>10 Q All right. And if you and this is for</p> <p>11 ovarian cancer, you see that?</p> <p>12 On the second line, "ovarian cancer," it</p> <p>13 talks --</p> <p>14 A Yes.</p> <p>15 Q Okay. Now, what I'd like you to do is</p> <p>16 turn to the second page, and there is a risk</p> <p>17 factor listed, amongst others. Do you see that?</p> <p>18 A I do.</p> <p>19 Q And it says "Talcum Powder and</p> <p>20 Asbestos." Do you see that?</p> <p>21 A Yes.</p> <p>22 Q All right. Would you read that, please.</p> <p>23 A "Habitual use of talcum powder on the</p> <p>24 genital area may increase the risk for ovarian</p> <p>25 cancer, but the evidence is not strong. A study"</p>	<p style="text-align: right;">Page 216</p> <p>1 up here, and I'm going to doc- -- and I'm going to</p> <p>2 go ahead and make a notation as you talk, and</p> <p>3 we're going to put your initials by that which you</p> <p>4 agree or don't agree, or that which resonates with</p> <p>5 you or that which does not.</p> <p>6 So give me a moment. Hang with me,</p> <p>7 okay?</p> <p>8 A Yeah.</p> <p>9 Q All right.</p> <p>10 MS. BROWN: Objection to the exercise.</p> <p>11 THE WITNESS: And I will say -- I mean I</p> <p>12 wasn't -- you know, that I don't necessarily --</p> <p>13 I'm not going to be able to necessarily agree or</p> <p>14 literally disagree with each one of these, but</p> <p>15 I'll just try to comment on what they -- what they</p> <p>16 have here and what it says to me.</p> <p>17 BY MS. PARFITT:</p> <p>18 Q All right. Well, why don't we take the</p> <p>19 first one.</p> <p>20 "Habitual use of talcum powder on the</p> <p>21 genital area may increase the risk for ovarian</p> <p>22 cancer, but the evidence is not strong."</p> <p>23 A Yeah.</p> <p>24 Q Do you agree with that?</p> <p>25 A I agree that the evidence is not strong.</p>
<p style="text-align: right;">Page 215</p> <p>1 -- the first sentence or the whole thing?</p> <p>2 Q The whole thing.</p> <p>3 A Yep. "A study at Harvard Medical School</p> <p>4 found that using talc this way doubled the risk,</p> <p>5 but other studies found no increased risk. Some</p> <p>6 researchers believe that talc may be carcinogenic</p> <p>7 because it contains particles of asbestos, a known</p> <p>8 carcinogen. It's been shown that rates of ovarian</p> <p>9 cancer are higher than normal in women whose jobs</p> <p>10 expose them to asbestos."</p> <p>11 Q All right. Thank you.</p> <p>12 Fair to say, Dr. Diette, that your</p> <p>13 opinions are contrary to the opinions of what --</p> <p>14 of those individuals at the Sidney Kimmel</p> <p>15 Comprehensive Cancer Center?</p> <p>16 MS. BROWN: Objection to the form of the</p> <p>17 question, lacks foundation.</p> <p>18 THE WITNESS: I wouldn't say globally.</p> <p>19 I mean there's -- there's things here that</p> <p>20 resonate with me just fine.</p> <p>21 BY MS. PARFITT:</p> <p>22 Q What resonates with you fine and what</p> <p>23 does not resonate with you?</p> <p>24 A Well, so, for example, when --</p> <p>25 Q And if you will, I'm going to put mine</p>	<p style="text-align: right;">Page 217</p> <p>1 And -- and I think it's a -- it's a pretty nuanced</p> <p>2 statement. It may increase, which leaves open</p> <p>3 that it may not increase. So I think it's a --</p> <p>4 it's a balanced statement. And their inclusion of</p> <p>5 the evidence not being strong is what resonates</p> <p>6 with me.</p> <p>7 Q Okay. Do you disagree, though, that</p> <p>8 it -- do you agree or disagree with this</p> <p>9 statement: "Habitual use of talcum powder on the</p> <p>10 genital area may increase the risk for ovarian</p> <p>11 cancer, but the evidence is not strong"?</p> <p>12 MR. LOCKE: Objection.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Do you agree with that statement?</p> <p>15 A I don't literally agree or disagree with</p> <p>16 it. I mean, I think I break it down the way that</p> <p>17 I did into those two parts.</p> <p>18 Q Okay. Well, I have a different</p> <p>19 question. I know how you want to do it, but I --</p> <p>20 I do get the ask the questions.</p> <p>21 MS. BROWN: He answered your question,</p> <p>22 Counsel.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Habitual question -- yes or no --</p> <p>25 MS. BROWN: No.</p>

55 (Pages 214 to 217)

Gregory B. Diette, M.D.

Page 218	Page 220
<p>1 BY MS. PARFITT: 2 Q "Habitual use of talcum powder on the 3 genital area may increase the risk for ovarian 4 cancer." True or false? 5 MR. LOCKE: Objection. 6 MS. BROWN: Objection to the form of the 7 question, asked and answered. 8 You can give the same answer again. 9 THE WITNESS: It's -- 10 MS. PARFITT: Counsel, please quit 11 instructing the witness. 12 MS. BROWN: Counsel, don't yell at me. 13 BY MS. PARFITT: 14 Q Go ahead. 15 MS. BROWN: We can call the Judge. 16 MS. PARFITT: I'm not yelling -- we can 17 call the Judge because I'll tell you, I don't 18 think he'll be -- she will be impressed. 19 MS. BROWN: That's fine. Let's go. 20 Let's walk right there and call her right now. 21 MS. PARFITT: I'm not going to waste the 22 time right now. 23 MS. BROWN: Okay. 24 THE WITNESS: So I don't see it as a 25 true or false questions. I think that there's two</p>	<p>1 than "may increase the risk," and it's very 2 different than saying it causes it. 3 BY MS. PARFITT: 4 Q Okay. 5 A So it's -- it's a pretty vague 6 statement. 7 Q Okay. And I think -- I hear what you're 8 saying, but my question, and I think you just 9 answered it, is if -- if Judge Wolfson says to 10 you, Dr. Diette, I would like an answer to my 11 question: Does the habitual use of talcum powder 12 on the genital area increase the risk for ovarian 13 cancer? 14 My -- my question to you from Judge 15 Wolfson. 16 MR. LOCKE: Objection. 17 MS. BROWN: Objection to the form of the 18 question, asked and answered. 19 THE WITNESS: And whether it does? 20 BY MS. PARFITT: 21 Q Yeah, the question is -- 22 A Well, it doesn't say that, though. 23 Q -- do you have -- no, no, no, I know it 24 doesn't. 25 A Oh.</p>
Page 219	Page 221
<p>1 parts, and I -- I like the way that I answered it. 2 BY MS. PARFITT: 3 Q Well, let me ask you this: My -- if 4 Judge Wolfson, who is the judge presiding over 5 this case, says to you, Dr. Diette, I've got a 6 question for you -- this is in July -- do you have 7 an opinion whether or not habitual use of talcum 8 powder on the genital area may increase the risk 9 for ovarian cancer, what are you going to tell 10 her? 11 MS. BROWN: Objection to the form of the 12 question and to the yelling at the witness. 13 BY MS. PARFITT: 14 Q I'm not yelling at you, Dr. Diette. 15 MS. PARFITT: Everyone is saying I 16 talk -- believe me, I'm not yelling at him. I'm 17 not that disrespectful. Trust me, please. 18 THE WITNESS: Okay. I don't think it 19 does, but, you know, there's so many ways you 20 could write this, which is why that it doesn't 21 strike me as something to agree or disagree with. 22 They could -- could have said "habitual use 23 causes." They could have said that it does 24 increase the risk. 25 So, you know, those are very different</p>	<p>1 Q I'm representing -- you've already told 2 me what you said about what's here. 3 A I see. 4 Q What I'm asking you is, do you have an 5 opinion whether or not the habitual use of talcum 6 powder -- powder on the genital area may increase 7 the risk for ovarian cancer? 8 A Not to quibble, but you just said does 9 increase before that, and now it's may increase? 10 Is it -- is it does increase -- 11 Q I'm going to do both, yeah. 12 A Okay. Well, I think this is so watered 13 down that it doesn't really say anything 14 definitive when you say "may increase." If the 15 question is about "does increase," I would say it 16 does not increase the risk. 17 Q Okay. And as worded, you feel that it's 18 somewhat equivocal. Is that fair? 19 MS. BROWN: Objection to the form of the 20 question. 21 THE WITNESS: Well, not the entire 22 statement. I mean the evidence is not strong. 23 Seems like a pretty -- a pretty potent part of the 24 statement. 25 BY MS. PARFITT:</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 222</p> <p>1 Q Okay. So you agree with "the evidence 2 is not strong." 3 And then what about the next part, "A 4 study at Harvard Medical School found that using 5 talc this way doubled the risk, but other studies 6 found no increased risk." Do you agree with that 7 statement? 8 MS. BROWN: Objection to the form of the 9 question. 10 THE WITNESS: It's -- I would say maybe. 11 And the reason is because they -- they haven't 12 cited what the Harvard study is. It -- I could 13 assume, but I might be wrong that maybe it's the 14 Cramer study from '82. Maybe it's not. So I 15 don't know. So if they're citing that, then -- 16 then that might well be a correct statement. And 17 it's certainly correct that other studies have 18 found no increased risk. 19 BY MS. PARFITT: 20 Q All right. So from your review of the 21 medical and scientific literature, you have seen 22 where scientists who look at the same scientific 23 and medical literature can arrive at different 24 opinions, correct? 25 MS. BROWN: Objection to the form of the</p>	<p style="text-align: right;">Page 224</p> <p>1 MS. BROWN: -- of the question, 2 misstates the document, and it's been asked and 3 answered. 4 THE WITNESS: I'd be careful a lot of 5 ways, right? I think it's -- it's easy to say 6 what, you know, Johns Hopkins is saying. I don't 7 know how well this represents Johns Hopkins as an 8 entity. I -- like I don't know who controls this 9 website. I don't know who the author was. I 10 don't know if it was -- you know, somebody who was 11 hired for the summer to create a website or 12 whether it's somebody who is a credible 13 researcher. 14 But I also know that these kinds of 15 things populate all kinds of different websites, 16 and they're not necessarily like a policy 17 statement, you know, of a university or a hospital 18 or an entity. 19 BY MS. PARFITT: 20 Q And I'll -- 21 A I would just be careful, I mean just in 22 terms of saying Johns Hopkins is saying this. 23 Q Well, I will represent to you, and you 24 can see for yourself, that the Sidney Kimmel 25 Comprehensive Center puts out this information.</p>
<p style="text-align: right;">Page 223</p> <p>1 question. 2 THE WITNESS: Are we talking about a 3 specific topic or just you -- in general, that 4 scientists can disagree with each other? 5 BY MS. PARFITT: 6 Q Scientists can disagree with each other. 7 MS. BROWN: Objection to the form. 8 THE WITNESS: I think in general, they 9 can disagree about all sorts of things. I don't 10 think there's a good reason to disagree about this 11 topic that we're talking about. 12 BY MS. PARFITT: 13 Q Well, in this particular sentence, Johns 14 Hopkins University is representing to consumers, 15 or anyone who wants to get onto the website, that 16 medical schools found -- that a study of the 17 Harvard Medical School found that using talc this 18 way doubled the risk, but other studies found no 19 increased risk. 20 A Yes. 21 Q Is it fair to say they're communicating 22 that there are science -- there's science out 23 there that goes both ways? 24 MS. BROWN: Objection to the form -- 25 MR. LOCKE: Objection.</p>	<p style="text-align: right;">Page 225</p> <p>1 Your institution. 2 MS. BROWN: Objection to the form of the 3 question, and misstates the document. 4 THE WITNESS: It's the same issue. 5 Right. I mean I know the Sidney Kimmel Cancer 6 Center, and I work there. It's -- but I don't 7 know what the source is of this information, I 8 don't know who's the author, and I don't know what 9 they expect it to represent in terms of a Johns 10 Hopkins, you know, point of view. 11 BY MS. PARFITT: 12 Q Did anyone over at the Sidney Kimmel 13 Comprehensive Cancer Center ever consult you with 14 regard to what language should be included on the 15 website with regard to risk factor information? 16 A No. 17 MS. BROWN: Objection to the form. 18 BY MS. PARFITT: 19 Q Okay. The second part, let's go on. If 20 you will, it starts with -- if you can read on 21 "Some," if you would read that, please. 22 A "Some researchers believe that talc may 23 be carcinogenic because it contains particles of 24 asbestos, a known carcinogen." 25 Q All right. And do you agree with that</p>

Gregory B. Diette, M.D.

Page 226	Page 228
<p>1 statement?</p> <p>2 MS. BROWN: Objection to the form.</p> <p>3 THE WITNESS: Well, I certainly agree</p> <p>4 that some researchers believe that, because we've</p> <p>5 seen it in plaintiffs' experts. So it's -- on its</p> <p>6 face, I think it's a -- a true -- true statement</p> <p>7 that there are people who believe that.</p> <p>8 And I think the part that asbestos is a</p> <p>9 known carcinogen is also something I agree with.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Okay. And then it goes on to say:</p> <p>12 "It's been shown that rates of ovarian cancer are</p> <p>13 higher than normal in women whose jobs expose them</p> <p>14 to asbestos."</p> <p>15 Do you agree with that statement?</p> <p>16 A So, you know, this language is -- is not</p> <p>17 great, right? It has been shown that, right. So</p> <p>18 we could look at, you know, any one of those</p> <p>19 studies that was done around World War II, for</p> <p>20 example, and if you looked at one that was</p> <p>21 positive, you could say it was shown that they</p> <p>22 were higher. I'm not sure whether the general</p> <p>23 proposition has been established, though.</p> <p>24 Q Okay.</p> <p>25 A If you guys are going to whisper, you're</p>	<p>1 out to the Food and Drug Administration to share</p> <p>2 your opinions with them?</p> <p>3 A No.</p> <p>4 Q All right. Other than counsel who has</p> <p>5 retained you to provide an expert -- a legal</p> <p>6 expert report, have you reached out to any</p> <p>7 scientific body to share your opinions?</p> <p>8 MS. BROWN: Objection to the form.</p> <p>9 THE WITNESS: No.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Okay. Have you reached out to any</p> <p>12 medical body to share your opinions?</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 THE WITNESS: No.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. Did you reach out to the Sidney</p> <p>17 Kimmel Comprehensive Cancer Center and the folks</p> <p>18 over there and share with them what your opinions</p> <p>19 are?</p> <p>20 A No.</p> <p>21 MS. BROWN: Asked and answered.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Do you know Dr. Merlo?</p> <p>24 A I do.</p> <p>25 Q He's a friend of yours, right?</p>
Page 227	Page 229
<p>1 going to miss what I'm saying.</p> <p>2 Q No, I was -- I was just turned.</p> <p>3 A Okay.</p> <p>4 Q I heard what you said. Thank you.</p> <p>5 A All right.</p> <p>6 Q And fortunately, I have it right here in</p> <p>7 front of you too.</p> <p>8 A Okay, good. Good, good, good.</p> <p>9 Q Yeah, thank you. And I thought you had</p> <p>10 finished what you were saying because you finished</p> <p>11 "okay," so I thought --</p> <p>12 MS. BROWN: That's your "okay," Counsel.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q I'm sorry. I believe you finished. I'm</p> <p>15 not sure whether the general proposition has been</p> <p>16 established. So I thought that was the end --</p> <p>17 A That was the end --</p> <p>18 Q -- of your sentence.</p> <p>19 A Yeah.</p> <p>20 Q Right. Okay. All right.</p> <p>21 A Are we done with this one?</p> <p>22 Q For the time being, yeah. We may come</p> <p>23 back to that.</p> <p>24 Other than providing counsel with an</p> <p>25 expert report of your opinions, have you reached</p>	<p>1 A He is.</p> <p>2 Q Okay. And you're Facebook friends.</p> <p>3 A I'm friends with his wife. He and I</p> <p>4 might be also, but we're friends in -- in reality,</p> <p>5 not just on --</p> <p>6 Q Not just on Facebook.</p> <p>7 A Yeah.</p> <p>8 Q Is his wife a doctor?</p> <p>9 A She is not.</p> <p>10 Q Okay. Do you know Dr. April</p> <p>11 Zambelli-Weiner?</p> <p>12 A I do.</p> <p>13 Q Okay. You have worked with her in the</p> <p>14 past, correct?</p> <p>15 A Really briefly, way back when.</p> <p>16 Q Okay. Do you consider her -- do you</p> <p>17 know she's an epidemiologist, correct?</p> <p>18 A I think I know that.</p> <p>19 Q Okay. Do you consider her an</p> <p>20 epidemiologist with expertise and well received in</p> <p>21 the medical comm- -- and scientific community?</p> <p>22 MS. BROWN: Objection. Lacks</p> <p>23 foundation, calls for speculation.</p> <p>24 THE WITNESS: So I don't know much</p> <p>25 about -- about her lately. I think the last time</p>

58 (Pages 226 to 229)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 230</p> <p>1 that I saw her was when she was still training at 2 Hopkins. And so there's a couple of decades that 3 have gone by. So I -- so I honestly have no idea 4 what her reputation is at this point. 5 BY MS. PARFITT: 6 Q Okay. Did you work with her? 7 A Sort of. Like not -- we were -- we were 8 both involved in a research project, but we 9 weren't both involved in the same part of the 10 project. So I -- it's -- to say that we worked 11 together, it's -- it's a little bit vague in a way 12 about whether we did. We traveled together for 13 one particular research program we were a part of. 14 But -- 15 Q Okay. 16 A Like I don't think we published 17 together. I don't think. 18 Q Do you think of her as a good scientist? 19 MS. BROWN: Objection to the form of the 20 question, calls for speculation. 21 THE WITNESS: I -- I honestly don't know 22 what she's -- what she's up to. I mean it's 23 literally been a couple of decades. 24 BY MS. PARFITT: 25 Q Sure. Well, when you did know her back</p>	<p style="text-align: right;">Page 232</p> <p>1 appear and give testimony, correct? 2 A Correct. 3 MS. BROWN: Form. 4 BY MS. PARFITT: 5 Q Right. So no one inquired as to what 6 your opinions were on this topic; is that correct? 7 MS. BROWN: Asked and answered. 8 THE WITNESS: That is correct. 9 BY MS. PARFITT: 10 Q Okay. I'll represent to you that at the 11 hearing, both consumer and industry were invited 12 to attend. 13 Are you aware that Dr. McTiernan, who is 14 an expert in this case, was one of those 15 individuals that was invited to attend? 16 MR. LOCKE: Objection. 17 MS. BROWN: Objection. Lacks 18 foundation. 19 THE WITNESS: I don't know. 20 BY MS. PARFITT: 21 Q Okay. You've read her expert report, 22 correct? 23 A I did. 24 Q And you understand that she was one of 25 the coinvestigators with the WHI study?</p>
<p style="text-align: right;">Page 231</p> <p>1 a couple of decades ago, did you consider her a 2 good scientist? 3 MS. BROWN: Objection to the form, 4 vague, calls for speculation. 5 THE WITNESS: I wouldn't say that I know 6 that she wasn't, but I really wasn't very familiar 7 with what her work was. 8 BY MS. PARFITT: 9 Q Her work. Okay. That's fair enough. 10 Okay. Alrighty. Let's set this aside. 11 Dr. Diette, are you aware that just last 12 month, and I believe it was March 12th, the House 13 Committee on Oversight and Reform, Committee on 14 Economic and Consumer Policy conducted a hearing 15 about the public health risk of carcinogens in 16 talcum powder products and other consumer 17 products? Were you aware of that? 18 MR. LOCKE: Objection. 19 MS. BROWN: Objection to the form. 20 THE WITNESS: I saw that -- a question 21 about that in one of the deposition transcripts 22 that I -- that I read. I don't remember which 23 one. But that's my only awareness of that. 24 BY MS. PARFITT: 25 Q Okay. So no one requested that you</p>	<p style="text-align: right;">Page 233</p> <p>1 MS. BROWN: Objection to the form. 2 BY MS. PARFITT: 3 Q One of the cohorts that you rely on. 4 MS. BROWN: Foundation, speculation. 5 THE WITNESS: That's what I understand. 6 BY MS. PARFITT: 7 Q Okay. When you were writing your expert 8 report and researching the cohort studies, did you 9 ever reach out to Dr. McTiernan to consult with 10 her with regard to her thoughts and opinions about 11 that particular cohort study? 12 MS. BROWN: Objection to the form. 13 Which study? 14 MS. PARFITT: I said the WHI study. 15 MS. BROWN: It's not in your question. 16 THE WITNESS: Assuming the WHI study, I 17 did not. 18 BY MS. PARFITT: 19 Q Okay. Dr. McTiernan testified at that 20 hearing, and her testimony went uncontroverted, 21 that there was a statistically significant 22 increased risk of 22 to 31 percent of developing 23 ovarian cancer from genital use of talcum powder 24 products. 25 Do you agree or disagree with that?</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 234</p> <p>1 MR. LOCKE: Objection.</p> <p>2 MS. BROWN: Objection. This lacks</p> <p>3 foundation. Counsel, are you giving him a</p> <p>4 hypothetical? Or if not, are you going to give</p> <p>5 him something that would support the statements</p> <p>6 that you're making on the record?</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Assume that Dr. McTiernan testified</p> <p>9 before the subcommittee who was investigating the</p> <p>10 safety of talcum powder products, that</p> <p>11 Dr. McTiernan testified that there was scientific</p> <p>12 evidence that women who used talcum powder</p> <p>13 products have a statistically significant</p> <p>14 increased risk of 22 to 31 percent of developing</p> <p>15 ovarian cancer.</p> <p>16 A So, first of all --</p> <p>17 MS. BROWN: Wait, wait. What's the</p> <p>18 question?</p> <p>19 BY MS. PARFITT:</p> <p>20 Q And I should add developing epithelial</p> <p>21 ovarian cancer having used talcum powder products.</p> <p>22 MS. BROWN: What's the question? You</p> <p>23 just gave an assumption.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Do you --</p>	<p style="text-align: right;">Page 236</p> <p>1 March 12th, 2019.</p> <p>2 Do you see that?</p> <p>3 A I see it.</p> <p>4 Q Okay. If I can direct your attention</p> <p>5 to -- and I'll represent that this was a statement</p> <p>6 that she submitted prior to the hearing, and</p> <p>7 specifically -- I can put it on the ELMO here.</p> <p>8 Let's go down to the third full paragraph.</p> <p>9 Do you see that, it starts</p> <p>10 "Summarizing"?</p> <p>11 A Yes.</p> <p>12 Q Okay. And it states: "Summarizing data</p> <p>13 from all of the published studies consistently</p> <p>14 shows that women who had ever used talcum powder</p> <p>15 products in the genital area had a statistically</p> <p>16 significant 22 to 31 percent increased risk of</p> <p>17 developing epithelial ovarian cancer compared with</p> <p>18 women who had never used them. Evidence suggests</p> <p>19 that these associations hold across diverse race</p> <p>20 and ethnic groups."</p> <p>21 Did I read that correctly?</p> <p>22 A You did.</p> <p>23 Q All right. Do you agree with that</p> <p>24 statement?</p> <p>25 MS. BROWN: Objection to the form.</p>
<p style="text-align: right;">Page 235</p> <p>1 MS. PARFITT: I just was finishing.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q But do you agree with her statement</p> <p>4 before Congress?</p> <p>5 MS. BROWN: Objection to the form.</p> <p>6 MR. LOCKE: Objection.</p> <p>7 MS. BROWN: Incomplete hypothetical,</p> <p>8 lacks foundation, calls for speculation.</p> <p>9 THE WITNESS: So I don't know what she</p> <p>10 said -- and I know you're asking me to assume what</p> <p>11 she said -- I don't know what else she said about</p> <p>12 it, so how the -- how that's framed -- it sounds</p> <p>13 compatible generally with what her report had at</p> <p>14 least one sentence about.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. Let me show you what we'll have</p> <p>17 marked as Exhibit 13.</p> <p>18 (Diette Exhibit No. 13 was marked</p> <p>19 for identification.)</p> <p>20 BY MS. PARFITT:</p> <p>21 Q And I'll represent to you that this</p> <p>22 is the statement of Ann McTiernan that was</p> <p>23 prepared for the Subcommittee on Economic and</p> <p>24 Consumer Policy on "Examining the Public Health</p> <p>25 Risks of Carcinogens in Consumer Products" dated</p>	<p style="text-align: right;">Page 237</p> <p>1 THE WITNESS: Well, I think this is</p> <p>2 compatible with what, you know, her report and her</p> <p>3 testimony has been generally. I think it's --</p> <p>4 it's -- unfortunately, it's not very balanced,</p> <p>5 right. I mean she -- she's leaving out an awful</p> <p>6 lot of information here and -- and really</p> <p>7 referring just to one narrow slice of the evidence</p> <p>8 that she's -- that she's citing here.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q Okay. What did she leave out, Doctor?</p> <p>11 A I'm sorry?</p> <p>12 Q What is she leaving out?</p> <p>13 A Well, saying that -- that "data from all</p> <p>14 the published studies consistently shows that</p> <p>15 women who had ever used talcum powder products in</p> <p>16 the genital area had a statistically significant</p> <p>17 22 to 31 percent increased risk," and I won't</p> <p>18 finish the rest, but, you know, of developing</p> <p>19 ovarian cancer.</p> <p>20 So, you know, they don't all have a</p> <p>21 statistically significant increase, and she's</p> <p>22 leaving out information that would run counter to</p> <p>23 that also, including I think -- let me just see</p> <p>24 what she cites.</p> <p>25 She cites Berge and Penninkilampi and</p>

60 (Pages 234 to 237)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 238</p> <p>1 Terry, but there's other information in there, 2 like from Berge, for example, you know, who points 3 out that there's no risk seen in the cohort 4 studies. So I think if this were balanced, that 5 she would -- she would have more information than 6 just that particular statement. 7 Q Okay. And we'll talk a little bit more 8 about the -- the cohorts in just -- just a moment. 9 Okay. What was the methodology you 10 employed in order to present the opinions and 11 bases for opinions in your report? 12 A So generally, I tried to identify all of 13 the relevant epidemiologic studies -- is that what 14 you're -- you're asking? 15 Q That is? 16 A Okay. 17 Q That is. 18 A And so I tried to find them in an 19 iterative way, you know, meaning that there were 20 meta-analyses that had many of them listed. I did 21 some searches of their own reference lists to look 22 for others. I did searches, you know, using 23 web-based, you know, tools to find other -- other 24 studies, and tried to get what I thought was a 25 pretty comprehensive group of all the</p>	<p style="text-align: right;">Page 240</p> <p>1 search terms that you used in order to do your 2 literature review? 3 A I didn't -- I didn't write them down, 4 but it -- you know, this didn't start as like a -- 5 like a -- like there's been some searches that 6 I've been involved in where, you know, somebody 7 might commission a review of a particular topic, 8 and you have to figure out what those search terms 9 are. 10 In this case, there's a really good head 11 start because there's meta-analyses done and 12 there's some other -- some other papers. And so 13 what I tried to use was the words that the authors 14 used, you know, assuming that they would then link 15 up and find the other -- other articles. 16 So -- so like "ovarian cancer," "talc," 17 "talcum powder," probably some -- you know, some 18 words like "risk" and "cause" and -- I think for 19 that part of it that was -- that was kind of the 20 bulk of it. There may have been other terms that 21 came up in some of the -- some of the articles 22 that I would search for also, but that -- that was 23 the main ones. 24 Q Did you search for the word "cancer"? 25 A Oh, well, "ovarian cancer."</p>
<p style="text-align: right;">Page 239</p> <p>1 epidemiologic studies. 2 And then I also tried to read other 3 things, you know, IARC monographs, other -- like 4 reports from like American College of Obstetrics 5 and Gynecology, and -- and get a sense of how some 6 of the information was being interpreted by 7 other -- other bodies. 8 And -- and then ultimately looked at 9 criteria that people recognize as useful for 10 assessing causation, which are labeled sometimes 11 Bradford Hill considerations, and then other 12 things too. 13 So besides that, then, you know, looking 14 at the quality of the studies in some cases. So, 15 for example, were there valid measures of -- of 16 exposure that were used, was there evidence for 17 confounding and bias, and so forth. 18 Q All right. 19 A Meaning especially those latters 20 aren't -- those latter factors aren't part of 21 Bradford Hill. Like he doesn't talk about, you 22 know, bias and confounding and validity of the 23 measures and so forth. So there's more to looking 24 at it than just Bradford Hill. 25 Q Okay. So what was -- what were the</p>	<p style="text-align: right;">Page 241</p> <p>1 Q Okay. Did you search for the word 2 "asbestos"? 3 A I did, but differently -- so I did sort 4 of a separate search for that, which was "asbestos 5 and ovarian cancer." Same approach, but -- but 6 different -- I thought we were just talking about 7 the talcum powder at the moment. 8 But separately, I did a search for 9 "asbestos and -- and ovarian cancer." And -- and 10 just like for this issue of talcum powder, there 11 was a good head start from -- from IARC, at least 12 having identified several -- several key studies, 13 and then looked for more because there were 14 obviously some that they didn't cite or that 15 weren't available to them at the time that they 16 did their -- their review. 17 Q Did you search for the word 18 "inflammation"? 19 A I did, for -- part of the searches was 20 for inflammation. 21 Q Okay. 22 A I should say also -- I mean there's more 23 to it if you want, just a little bit more. 24 Q No. Let me ask you a question first. 25 A Okay.</p>

Gregory B. Diette, M.D.

Page 242	Page 244
<p>1 Q There's no question pending.</p> <p>2 I assume you did a literature search</p> <p>3 back in the early part of 2017 when you were first</p> <p>4 retained, correct?</p> <p>5 A Correct.</p> <p>6 Q All right. So did you update that</p> <p>7 literature search?</p> <p>8 A Oh, yeah.</p> <p>9 Q Okay. Did you keep -- do you keep some</p> <p>10 kind of recordation of material you had before and</p> <p>11 then what material you're looking at now for</p> <p>12 purposes of this most recent report?</p> <p>13 A No, I mean it's not sorted by -- by when</p> <p>14 I found it.</p> <p>15 Q All right. You represented, at least in</p> <p>16 your report, that you looked at the databases</p> <p>17 Medline and Google.</p> <p>18 Did you use any other databases for your</p> <p>19 research?</p> <p>20 A Well, scholar -- Google Scholar as</p> <p>21 opposed to just plain Google and then main Google</p> <p>22 itself. I don't remember if I used any others.</p> <p>23 Q Okay. Where in your report do you share</p> <p>24 your systematic review and collection of the</p> <p>25 various literature that formed the bases of your</p>	<p>1 A Some --</p> <p>2 MS. BROWN: Objection to the form.</p> <p>3 THE WITNESS: Some of it.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Okay. And how did you select the</p> <p>6 case -- the cases that became part of your list of</p> <p>7 cases on page 13 and 14 of your report?</p> <p>8 A What does "cases" mean?</p> <p>9 Q Studies. You have them listed on</p> <p>10 page 13, and it carries over to page 14.</p> <p>11 A It's -- the way I describe it, I don't</p> <p>12 think I got to finish answering the question about</p> <p>13 the -- the rest of the methodology. You'd have to</p> <p>14 turn over to page 6, and in the section called</p> <p>15 "Review of Epidemiology Data," there's a</p> <p>16 description of what I just told you verbally just</p> <p>17 a moment ago, which is talking about MedLine and</p> <p>18 Google Scholar, and reviewed the reference list of</p> <p>19 the individual studies and the meta-analyses to</p> <p>20 assemble a complete list of studies, and then I --</p> <p>21 it goes on. That's not the whole paragraph</p> <p>22 obviously, but that's the -- that's the general</p> <p>23 method of how I found them.</p> <p>24 Q Okay. And what process did you go</p> <p>25 through to select or deselect certain pieces of</p>
Page 243	Page 245
<p>1 opinion?</p> <p>2 A I didn't write that part, I don't think,</p> <p>3 but it -- I do talk about the -- the methodology</p> <p>4 in general.</p> <p>5 Q Okay. Well, you talk about the</p> <p>6 methodology on page -- I believe it's page 4, and</p> <p>7 there's about two paragraphs there, and then on</p> <p>8 the top of page 5, where there's just two full</p> <p>9 paragraphs.</p> <p>10 So my question is, where do you -- is</p> <p>11 there anywhere else in your report that you set</p> <p>12 forth your methodology --</p> <p>13 A Yeah.</p> <p>14 Q -- employed in order to --</p> <p>15 A Sure, other places --</p> <p>16 Q -- form the basis for your opinions?</p> <p>17 A Sorry, I didn't mean to interrupt.</p> <p>18 Q No, and what I'm saying --</p> <p>19 A Were you done?</p> <p>20 Q -- you have a methodology section --</p> <p>21 let's start over.</p> <p>22 You have a methodology section of your</p> <p>23 report. Is it fair that that is where you set</p> <p>24 forth the methodology that you employ in this</p> <p>25 case?</p>	<p>1 literature that you reviewed?</p> <p>2 A Well, I -- I included all of the ones</p> <p>3 that I could find. I mean we're talking about the</p> <p>4 epidemiologic studies.</p> <p>5 Q We are. We are indeed, yeah.</p> <p>6 A So like in terms of the cohort studies,</p> <p>7 there's only three I could find. There's more</p> <p>8 than three publications that pertain to the three,</p> <p>9 but I included all three, and I included all the</p> <p>10 publications I could find on the topic.</p> <p>11 But the case-control study, a similar</p> <p>12 approach, although there's a little bit of</p> <p>13 confusion with the case controls because there's</p> <p>14 overlap. There is a redundant publication where</p> <p>15 some authors are presenting the same data twice,</p> <p>16 and it's not entirely clear how to unravel them.</p> <p>17 So I just tried to include as many of those as I</p> <p>18 could that looked like distinct studies, and I</p> <p>19 tried to make sure I had the -- you know, the vast</p> <p>20 majority of what was being considered in the</p> <p>21 meta-analysis as well.</p> <p>22 Q I think where I'm going is, where do</p> <p>23 you -- where do you tell the -- the reader what</p> <p>24 your inclusion criteria was for selecting studies?</p> <p>25 MS. BROWN: Objection to the form.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 246</p> <p>1 THE WITNESS: I tried to get them all. 2 I wasn't trying to exclude any studies. 3 BY MS. PARFITT: 4 Q So every -- so may I assume from that 5 statement that all of the literature that you've 6 listed on page 13 and 14 in the cohort studies and 7 the meta-analysis is the entire body of literature 8 that you reviewed? 9 A Of course not. 10 MS. BROWN: Objection to the form. 11 THE WITNESS: No, no, what -- well, I 12 guess, if you could, please be very precise what 13 you're asking. 14 To me what I think we're talking about 15 is the case-control studies and the cohort 16 studies, and so I tried to identify every single 17 one of them. So I didn't have an exclusion 18 criteria to say I was going to ignore this one 19 because it wasn't supportive of my view or 20 something like that. I included them all. 21 I searched for clinical trials, but 22 there weren't any. So that was -- that was an 23 issue as well. 24 BY MS. PARFITT: 25 Q Were there any studies that you chose</p>	<p style="text-align: right;">Page 248</p> <p>1 of the risk -- risk estimates, not of the number 2 of cases. 3 BY MS. PARFITT: 4 Q Correct. So where on this page 13 or 14 5 do you tell the reader how many ovarian cancer 6 cases were part of that study? 7 MS. BROWN: Objection to the form. 8 THE WITNESS: It's not on there. 9 BY MS. PARFITT: 10 Q Okay. Where on your list of cases, 13 11 and 14, do you tell the reader the number of 12 controls that were involved in that study? 13 A I didn't -- I didn't list every single 14 thing like that on here. 15 Q You didn't list it in your report 16 either, correct? 17 MS. BROWN: Objection to the form. 18 THE WITNESS: Well, this is the report. 19 BY MS. PARFITT: 20 Q Well, you didn't list it anywhere else 21 other -- that information is not contained in your 22 report. Is that fair? 23 MS. BROWN: Objection to the form. 24 MR. LOCKE: Objection. 25 THE WITNESS: The sample size?</p>
<p style="text-align: right;">Page 247</p> <p>1 not to include on your list of 13 and 14 that you 2 had actually reviewed during the course of your 3 study? 4 A And we're talking about case-control 5 studies and cohorts. 6 Q Correct. 7 A I didn't -- wait a minute. I didn't 8 deliberately not include any of them. I tried to 9 include every single one, with that exception 10 being -- and I don't remember which ones were 11 which, but there were a couple that were 12 redundant. You know, the -- the authors of these 13 haven't in every case been careful about reporting 14 findings that are unique. 15 Q Okay. Focusing now, if I may, on your 16 chart, page 13 and 14 of the case-control studies. 17 Do you have that in front of you? 18 A Almost. 19 Q Okay. 20 A I do. 21 Q All right. Where in this document, 22 page 13 and 14, do you identify the number of 23 ovarian cases that formed the bases of the study? 24 MS. BROWN: Objection to the form. 25 THE WITNESS: This is the list of the --</p>	<p style="text-align: right;">Page 249</p> <p>1 BY MS. PARFITT: 2 Q The sample size is not information that 3 you contained -- that you included in your report, 4 correct? 5 A I did not. 6 MS. BROWN: Same objection. 7 BY MS. PARFITT: 8 Q Okay. Where in your report do you tell 9 the reader the country from where these studies 10 came from? 11 MS. BROWN: Objection to the form. 12 THE WITNESS: I don't list that. 13 BY MS. PARFITT: 14 Q Okay. Where do you tell the reader what 15 the mean age of the participants in this study 16 were? 17 MS. BROWN: Same objection. 18 THE WITNESS: And same answer, I 19 don't -- I don't list that either. 20 BY MS. PARFITT: 21 Q Where in your report do you tell the 22 reader the number of adjusted variables per study 23 that were considered? 24 MS. BROWN: Objection to the form. 25 THE WITNESS: I didn't -- I didn't</p>

Gregory B. Diette, M.D.

<p>Page 250</p> <p>1 capture that here.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Okay. And where in your report do you</p> <p>4 tell the reader the type of ovarian cancer that</p> <p>5 the women suffered?</p> <p>6 MS. BROWN: Objection to the form.</p> <p>7 THE WITNESS: That's not listed on -- on</p> <p>8 this table either.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q Did you create this table yourself or</p> <p>11 did you have assistance?</p> <p>12 A So, actually, I made this initially, and</p> <p>13 there might have been a couple that filtered in</p> <p>14 after I started to create it where -- you know,</p> <p>15 where I had an assistant, you know, plug in a</p> <p>16 different study.</p> <p>17 Q Where in your report do you tell the</p> <p>18 reader if you applied a scoring system to the data</p> <p>19 and the studies that you reviewed?</p> <p>20 A That wasn't --</p> <p>21 MS. BROWN: Objection. Lacks</p> <p>22 foundation.</p> <p>23 THE WITNESS: That wasn't my approach.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. We'll talk about that in a</p>	<p>Page 252</p> <p>1 Q What specific, if any, in vitro studies</p> <p>2 did you consider for purposes of your opinion?</p> <p>3 A So I -- are you good?</p> <p>4 Q Yeah, thank you.</p> <p>5 A Okay. So I -- I don't know if you're</p> <p>6 including some animal studies as in vitro studies</p> <p>7 or whether you just mean sort of like ones that</p> <p>8 are -- that are cell-based or in a dish.</p> <p>9 Q Well, there's a difference, isn't there?</p> <p>10 A There should be, yeah, but I just --</p> <p>11 since you're asking the question, I don't know</p> <p>12 you, and so I -- I just want to be clear.</p> <p>13 Q No, I'm -- I'm cognizant of the</p> <p>14 difference between in vivo and in vitro, so what</p> <p>15 I -- what I would ask you is what in vitro studies</p> <p>16 did you consider for purposes of your analysis?</p> <p>17 A Yeah, I looked at some. I think the</p> <p>18 ones that were cited by IARC I looked at. I don't</p> <p>19 remember the full list of ones -- which ones I may</p> <p>20 have listed, if any, that -- that I looked at.</p> <p>21 But that wasn't really my main -- my main purpose</p> <p>22 in looking at the epidemiology, which was to --</p> <p>23 was to look at in vitro studies.</p> <p>24 Q Okay. Was part of your analysis -- or</p> <p>25 did part of your analysis include looking at</p>
<p>Page 251</p> <p>1 minute. Appreciate that.</p> <p>2 Did you exercise any independent</p> <p>3 judgment in determining what cases to include on</p> <p>4 this chart of case-control studies on 13 and 14?</p> <p>5 MS. BROWN: Objection. Asked and</p> <p>6 answered.</p> <p>7 THE WITNESS: I tried to be inclusive.</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Being inclusive -- did being inclusive</p> <p>10 require you to exercise professional judgment with</p> <p>11 regard to selection of the cases that you reviewed</p> <p>12 and included for purposes of your analysis?</p> <p>13 A So, mostly, yes. What I would say is I</p> <p>14 was trying to understand what the universe was of</p> <p>15 case controls that were being listed in the</p> <p>16 meta-analyses, what the case controls were that</p> <p>17 were informing the opinions of the plaintiffs'</p> <p>18 experts. And so I didn't want to have some</p> <p>19 arbitrary rule for saying one shouldn't be in</p> <p>20 here. I wanted to look at them all. And so my</p> <p>21 goal was actually to include them all, and not</p> <p>22 deselect some because I thought that there was a</p> <p>23 quality issue with them.</p> <p>24 (Brief interruption.)</p> <p>25 BY MS. PARFITT:</p>	<p>Page 253</p> <p>1 in vivo studies?</p> <p>2 A So I looked at -- at a bunch of the</p> <p>3 different animal studies that were cited, cited in</p> <p>4 some of the other documents.</p> <p>5 Q Which ones?</p> <p>6 A So I don't remember the author names. I</p> <p>7 mean, there were -- there were studies of, you</p> <p>8 know, rats, rabbits, primates. I can't remember</p> <p>9 if there were mouse -- there were mouse studies as</p> <p>10 well.</p> <p>11 So whatever that list is that was in</p> <p>12 IARC that they had considered at that point, and</p> <p>13 then I think I found a couple more.</p> <p>14 Q What, if any, information did you glean</p> <p>15 from your review of the in vitro and in vivo</p> <p>16 studies that formed the basis of your study</p> <p>17 report?</p> <p>18 A Well, mostly -- so to -- to think about</p> <p>19 how -- for me as an epidemiologist, and not as a</p> <p>20 cancer biologist or molecular biologist, I wanted</p> <p>21 to just understand generally how some of the other</p> <p>22 entities were wielding that information, right.</p> <p>23 So that -- like I wasn't about to become a cancer</p> <p>24 biologist in reading these things or understand</p> <p>25 whether their methods were appropriate or not, but</p>

Gregory B. Diette, M.D.

Page 254	Page 256
<p>1 I did want to understand some of their</p> <p>2 underpinnings.</p> <p>3 Q Okay.</p> <p>4 A And just so, for example, right, so</p> <p>5 there's the -- the studies on migration, for</p> <p>6 example. I thought it was important to look at</p> <p>7 those and see what kind of animals, for example,</p> <p>8 had what kind of particles either put into their</p> <p>9 vaginas or put into their uterus, or whatever it</p> <p>10 was, so I could understand what the -- what the</p> <p>11 story was there.</p> <p>12 Q Okay. Do animals have vaginas?</p> <p>13 A Some do, yeah.</p> <p>14 Q You -- you indicated you're not a cancer</p> <p>15 specialist. Would you defer to -- on topics</p> <p>16 involving those issues to a cancer biologist?</p> <p>17 MS. BROWN: Objection to the form of the</p> <p>18 question.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q And let me clean it up because I think I</p> <p>21 left that off. You are not a cancer biologist,</p> <p>22 correct?</p> <p>23 A Correct.</p> <p>24 Q All right. So would you defer questions</p> <p>25 in that wheelhouse to someone who is a cancer</p>	<p>1 MS. BROWN: What report is --</p> <p>2 MS. PARFITT: Saed.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q Just give me a moment, Doctor.</p> <p>5 If you turn your attention to page 42.</p> <p>6 A Mm-hmm.</p> <p>7 Q At the bottom.</p> <p>8 A Okay.</p> <p>9 Q "I leave a detailed assessment of</p> <p>10 Dr. Saed's efforts to other experts. I did review</p> <p>11 Dr. Saed's report and his two depositions and was</p> <p>12 struck by the irregularities in his study, which</p> <p>13 render his results highly questionable."</p> <p>14 So are you or are you not deferring with</p> <p>15 regard to opinions concerning what Dr. Saed had to</p> <p>16 say?</p> <p>17 MS. BROWN: Objection. Misstates the</p> <p>18 expert report and the opinion.</p> <p>19 THE WITNESS: I -- I meant to be</p> <p>20 somewhat nuanced here, right, which is that -- you</p> <p>21 know, it's possible for me to read things and</p> <p>22 understand that there might be some issues with</p> <p>23 what he's done. I -- I'm not going to be the</p> <p>24 person to critique the biologic aspects of his</p> <p>25 work, though.</p>
Page 255	Page 257
<p>1 biologist?</p> <p>2 MS. BROWN: Same objection.</p> <p>3 THE WITNESS: So I mostly don't think</p> <p>4 about deferring my opinions to other -- other</p> <p>5 people's categorically. You know, so that I think</p> <p>6 if there were somebody that was a cancer biologist</p> <p>7 and they had an opinion that seemed credible, I</p> <p>8 would take it into account. But to the extent</p> <p>9 that I needed to understand something, I would</p> <p>10 still rely on my own -- my own background and</p> <p>11 knowledge.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q All right. You're not a -- a molecular</p> <p>14 specialist, correct?</p> <p>15 MS. BROWN: Objection.</p> <p>16 THE WITNESS: Not a molecular biologist.</p> <p>17 BY MS. PARFITT:</p> <p>18 Q Okay. I believe you stated in your</p> <p>19 report that you were deferring to other experts in</p> <p>20 this case as it pertains to the opinions that</p> <p>21 Dr. Saed has given; is that correct?</p> <p>22 MS. BROWN: Objection to the form.</p> <p>23 Counsel, is there a part of the report you're</p> <p>24 referring to?</p> <p>25 MS. PARFITT: Mm-hmm, there is.</p>	<p>1 BY MS. PARFITT:</p> <p>2 Q Okay. Fair enough. In fact, let me ask</p> <p>3 you, have you read the published scientific</p> <p>4 article by Dr. Saed?</p> <p>5 A Not yet.</p> <p>6 Q Okay. Do you have any plans to do that?</p> <p>7 A I might. I might, because I was just --</p> <p>8 I was curious because I saw some of the -- like</p> <p>9 the expert reports that came in after I wrote my</p> <p>10 report, and there were things that just kind of</p> <p>11 struck me that would be worth trying to sort</p> <p>12 through, like whether he had changed like 48 to 36</p> <p>13 or -- yeah, 48 hours to 72 hours, whatever it was,</p> <p>14 that there were like some tables apparently that</p> <p>15 were the same as an original paper, that the only</p> <p>16 change was like the numbers on them. And so just</p> <p>17 to sort of understand the quality issues related</p> <p>18 to the study, I thought I might take a look at it.</p> <p>19 Q All right. But prior to preparing your</p> <p>20 expert report, and, frankly, this deposition</p> <p>21 today, you have not read either Dr. Saed's -- you</p> <p>22 have not read Dr. Saed's most current peer-</p> <p>23 reviewed paper, correct?</p> <p>24 A True for both time periods. I don't</p> <p>25 think it was published or available to me before I</p>

65 (Pages 254 to 257)

Gregory B. Diette, M.D.

Page 258	Page 260
<p>1 did the report, but I could be wrong.</p> <p>2 Q Well, it's available now, isn't it?</p> <p>3 A That's what I've heard.</p> <p>4 MS. BROWN: Objection to the form.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q But you've not seen it.</p> <p>7 A No. I just -- I mean like -- I mean</p> <p>8 it -- sorry, it's the way I think. It sounds like</p> <p>9 two different time periods. One was --</p> <p>10 Q No.</p> <p>11 A -- before the report and one was between</p> <p>12 then and now.</p> <p>13 Q No, my question goes --</p> <p>14 MS. BROWN: Wait, he's finishing. Let</p> <p>15 him finish.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q My question -- are you done?</p> <p>18 A I'm good.</p> <p>19 Q My question really goes to, is it fair</p> <p>20 to say that you have not read Dr. Saed's published</p> <p>21 peer-reviewed article at the time of your</p> <p>22 deposition?</p> <p>23 A That is correct.</p> <p>24 THE WITNESS: Sorry.</p> <p>25 MS. BROWN: That's all right.</p>	<p>1 think, but I've certainly read other -- I mean</p> <p>2 others that aren't on either of those topics.</p> <p>3 Q Would you agree -- would you agree that</p> <p>4 IARC is a well-respected scientific organization?</p> <p>5 MS. BROWN: Object -- I'm sorry. I</p> <p>6 didn't hear the question.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Would you agree that IARC is a well-</p> <p>9 respected scientific organization?</p> <p>10 MS. BROWN: Objection to the form.</p> <p>11 THE WITNESS: It's -- it's hard for me</p> <p>12 to characterize whole organizations, you know, in</p> <p>13 terms of whether they're well respected or by whom</p> <p>14 or when, but generally speaking, you know, they --</p> <p>15 they do produce some -- some credible documents.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q They do produce some credible documents.</p> <p>18 It's -- IARC is part of the World Health</p> <p>19 Organization, correct?</p> <p>20 A It is.</p> <p>21 Q Okay. And when IARC has its meetings to</p> <p>22 discuss classification of carcinogens, it invites</p> <p>23 world-renowned experts for whatever area and</p> <p>24 specialty is being discussed. Is that fair?</p> <p>25 MS. BROWN: Objection to the form.</p>
Page 259	Page 261
<p>1 BY MS. PARFITT:</p> <p>2 Q Okay. Now, you've mentioned IARC a</p> <p>3 couple of times during the course of your</p> <p>4 testimony.</p> <p>5 Have you rereviewed the IARC</p> <p>6 monographs -- or the IARC monogram that was</p> <p>7 published in 2010 on silica?</p> <p>8 MS. BROWN: The monograph?</p> <p>9 MS. PARFITT: The monograph. Monograph.</p> <p>10 MS. BROWN: Monograph on talc?</p> <p>11 MS. PARFITT: On talc, mm-hmm.</p> <p>12 THE WITNESS: Did you just say silica or</p> <p>13 no?</p> <p>14 BY MS. PARFITT:</p> <p>15 Q I did say silica. I meant talc.</p> <p>16 A You meant talc. Yeah, I've read the</p> <p>17 talc one.</p> <p>18 Q You've read the talc one. Have you read</p> <p>19 the 2012 monograph, the one 100C, have you seen</p> <p>20 that?</p> <p>21 A I have.</p> <p>22 Q Okay. Have you read any other</p> <p>23 monographs on talc or asbestos?</p> <p>24 A I've read earlier ones on asbestos. I</p> <p>25 don't know of any other ones on talc, I don't</p>	<p>1 MR. LOCKE: Objection.</p> <p>2 MS. BROWN: Calls for speculation.</p> <p>3 THE WITNESS: I don't know their</p> <p>4 selection process, but they -- but they certainly</p> <p>5 invite -- invite people to attend.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Okay. Have you ever been invited to</p> <p>8 attend an IARC --</p> <p>9 A I have not.</p> <p>10 Q -- working group?</p> <p>11 A No.</p> <p>12 Q Okay. Did IARC invite you to attend</p> <p>13 their working group back in 2006 when they were</p> <p>14 deliberating on the issue of talcum -- talc</p> <p>15 products?</p> <p>16 MS. BROWN: Objection. Same question,</p> <p>17 asked and answered.</p> <p>18 THE WITNESS: She's right, but -- but</p> <p>19 no.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Okay. Did IARC ever invite you to</p> <p>22 attend and share your opinions when they had their</p> <p>23 asbestos meetings?</p> <p>24 MS. BROWN: Same objection.</p> <p>25 THE WITNESS: No.</p>

66 (Pages 258 to 261)

Gregory B. Diette, M.D.

Page 262	Page 264
<p>1 BY MS. PARFITT:</p> <p>2 Q Do you know what the NTP is?</p> <p>3 A It's like the National Toxicological</p> <p>4 Program.</p> <p>5 Q Okay. Has the National Toxicological</p> <p>6 Program ever asked you to do research for them on</p> <p>7 talcum powder products?</p> <p>8 A No.</p> <p>9 Q Has the National Toxicology Program ever</p> <p>10 asked that you do research with them on asbestos?</p> <p>11 A No.</p> <p>12 Q Have you ever submitted any research to</p> <p>13 the NTP on anything?</p> <p>14 A No.</p> <p>15 Q Have you ever submitted any research to</p> <p>16 IARC on anything?</p> <p>17 A No.</p> <p>18 Q What is a risk factor?</p> <p>19 MS. BROWN: Objection to the form.</p> <p>20 THE WITNESS: Are we talking about like</p> <p>21 an epidemiologic definition?</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Just generally, what's a risk factor?</p> <p>24 MS. BROWN: Objection.</p> <p>25 THE WITNESS: Well, I don't -- you said</p>	<p>1 Q For instance, if -- is talcum powder a</p> <p>2 modifiable behavior -- the use of talcum powder a</p> <p>3 modifiable behavior?</p> <p>4 MS. BROWN: Objection. Misstates his</p> <p>5 prior testimony.</p> <p>6 THE WITNESS: So it -- it should be,</p> <p>7 yeah.</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Okay. Now, Dr. Diette, your paper or</p> <p>10 your expert report was signed and executed by you</p> <p>11 on February 25th, 2019.</p> <p>12 A Correct.</p> <p>13 Q Okay. When did you actually finish the</p> <p>14 paper, the report?</p> <p>15 A Oh, I think about then. I mean --</p> <p>16 Q About then?</p> <p>17 A I think around then. I mean it's -- I</p> <p>18 don't know whether it was the day before or the --</p> <p>19 or that actual day, but -- but right around then.</p> <p>20 Q Okay. Are you aware that -- I guess it</p> <p>21 was just a couple of months earlier that Health</p> <p>22 Canada issued and published a critical review and</p> <p>23 assessment of the science, which actually included</p> <p>24 a comprehensive review of the epidemiological</p> <p>25 literature? Did you know that?</p>
Page 263	Page 265
<p>1 generally. It could mean a million things to</p> <p>2 different people.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q What's it mean to you?</p> <p>5 A It depends upon the context. That's why</p> <p>6 I'm asking from like an epidemiologic standpoint</p> <p>7 as opposed to some other context.</p> <p>8 Q Well, let's take mesothelioma. What are</p> <p>9 the risk factors for mesothelioma?</p> <p>10 A Well, if we're talking about, you know,</p> <p>11 asbestos, for example, as one risk factor, then</p> <p>12 you could use it that way, that -- that an</p> <p>13 exposure elevates the risk of developing a</p> <p>14 disease.</p> <p>15 Q Okay. Let's take talcum powder. Is</p> <p>16 talcum powder a risk factor for ovarian cancer?</p> <p>17 A I don't believe so.</p> <p>18 Q Are there risk factors that are</p> <p>19 modifiable?</p> <p>20 MS. BROWN: Objection to the form.</p> <p>21 THE WITNESS: For what?</p> <p>22 BY MS. PARFITT:</p> <p>23 Q For a disease.</p> <p>24 MS. BROWN: Same objection.</p> <p>25 BY MS. PARFITT:</p>	<p>1 MR. LOCKE: Objection.</p> <p>2 MS. BROWN: Objection. That misstates</p> <p>3 the draft assessment.</p> <p>4 THE WITNESS: I'm familiar with it.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Okay. Have you read it?</p> <p>7 A I have.</p> <p>8 Q Have you read it in its entirety?</p> <p>9 A I don't remember if there's like</p> <p>10 appendices or something, but I read all the -- you</p> <p>11 know, the mean part of the text.</p> <p>12 Q Okay. There is also meta-analysis that</p> <p>13 was performed about that same time.</p> <p>14 A Yes. Yeah.</p> <p>15 Q Have you read that?</p> <p>16 A I have.</p> <p>17 Q Okay. Did Health Canada do what we</p> <p>18 would refer to in your world of epidemiology a</p> <p>19 causality assessment?</p> <p>20 MS. BROWN: Objection to the form of the</p> <p>21 question.</p> <p>22 THE WITNESS: I don't know if that's</p> <p>23 what they did.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q What did they do?</p>

67 (Pages 262 to 265)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 266</p> <p>1 MS. BROWN: Objection.</p> <p>2 THE WITNESS: It looks to me as if they</p> <p>3 create -- well, so I don't know. So they -- they</p> <p>4 have their own process. I don't know anything</p> <p>5 about Health Canada, so I don't know what they</p> <p>6 typically do. You know, I've never -- it's unlike</p> <p>7 some other entities where I would kind of</p> <p>8 understand their process because I've read their</p> <p>9 things before.</p> <p>10 I don't -- I don't know anybody</p> <p>11 personally that looks to Health Canada for</p> <p>12 information, so I've never had a conversation with</p> <p>13 anybody about, you know, what their methods are,</p> <p>14 how they go about their business.</p> <p>15 But it looks as if what they were trying</p> <p>16 to do was to try to line up whether there was</p> <p>17 information about where talcum powder is found in</p> <p>18 Canada, so meaning like, you know, how many</p> <p>19 different kinds of products. It looked like they</p> <p>20 were trying to assess some things about dermal</p> <p>21 absorption or not, whether it's ingested or not,</p> <p>22 whether it's inhaled, whether perineal application</p> <p>23 matters or not.</p> <p>24 It seems that they commissioned yet</p> <p>25 another meta-analysis of some sort by Dr. Taher,</p>	<p style="text-align: right;">Page 268</p> <p>1 fair?</p> <p>2 MS. BROWN: Objection to the form.</p> <p>3 THE WITNESS: That looks to be part of</p> <p>4 what they've included in here.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q And you yourself, for purposes of your</p> <p>7 report, looked at case-control studies, cohort</p> <p>8 studies, and meta-analyses, correct?</p> <p>9 A I did.</p> <p>10 Q Okay. Did Health Canada perform a</p> <p>11 Bradford Hill assessment of the evidence?</p> <p>12 MS. BROWN: Objection to the form.</p> <p>13 THE WITNESS: They have a section here.</p> <p>14 I mean, there's something here that -- that</p> <p>15 resembles a Bradford Hill analysis.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Okay. Let me direct your --</p> <p>18 MS. BROWN: Take as long as you need,</p> <p>19 Doctor, to finish your answer.</p> <p>20 THE WITNESS: Well, I just -- like I</p> <p>21 don't know -- I don't know how much leeway there</p> <p>22 is in the world for people to say that they did a</p> <p>23 Bradford Hill analysis just by listing out certain</p> <p>24 keywords, right? I mean it's sort of like a word</p> <p>25 salad exercise to me for some of these cases, and</p>
<p style="text-align: right;">Page 267</p> <p>1 and -- and then created the document that I guess</p> <p>2 that they put out there for -- for public comment</p> <p>3 of some sort.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Okay. All right. Let's have marked the</p> <p>6 Health Canada report, the draft assessment. And</p> <p>7 we'll have that marked as Exhibit No. 14.</p> <p>8 (Diette Exhibit No. 14 was marked</p> <p>9 for identification.)</p> <p>10 (Counsel conferring.)</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Do you have that in front of you?</p> <p>13 A I do.</p> <p>14 Q Okay. All right. Did the -- did Health</p> <p>15 Canada look at all three types of study designs?</p> <p>16 And by that, I mean case control, cohort, and</p> <p>17 meta-analyses.</p> <p>18 MS. BROWN: Objection to what you mean</p> <p>19 by "look at." Objection to the form.</p> <p>20 THE WITNESS: They've listed -- they've</p> <p>21 listed some of each.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q All right. So they consider for</p> <p>24 purposes of their analysis cohort studies,</p> <p>25 case-control studies and meta-analyses. Is that</p>	<p style="text-align: right;">Page 269</p> <p>1 so --</p> <p>2 BY MS. PARFITT:</p> <p>3 Q I'm sorry. A word what?</p> <p>4 A Word salad.</p> <p>5 Q Word salad.</p> <p>6 A Yeah. Not a technical term, but it's</p> <p>7 kind of a mess, right. So they've got -- like on</p> <p>8 page 19, they've got strength, and strength is a</p> <p>9 Bradford Hill criterion. They don't say whether</p> <p>10 the risk is, you know, weak or strong. They just</p> <p>11 have a list of 30 epidemiologic studies, and they</p> <p>12 say a couple things about some of them being</p> <p>13 statistically significant and -- and so forth.</p> <p>14 Q Okay.</p> <p>15 A And so that -- that isn't really a</p> <p>16 Bradford Hill type analysis about what the --</p> <p>17 whether the strength is high or low.</p> <p>18 And similarly, I would just say like,</p> <p>19 you know, for temporality, you know, what they've</p> <p>20 said here is crazy, right. So it's like --</p> <p>21 Q I'm sorry. What they've said here is</p> <p>22 what?</p> <p>23 A Crazy.</p> <p>24 Q Crazy.</p> <p>25 A Crazy.</p>

68 (Pages 266 to 269)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 270</p> <p>1 Q So let me just ask --</p> <p>2 MS. BROWN: Wait now, he is not done.</p> <p>3 You can follow up when he is done with --</p> <p>4 MS. PARFITT: Fair enough.</p> <p>5 MS. BROWN: Go ahead, Doctor.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Okay. Crazy.</p> <p>8 A Okay. Oh, well, they said like in all</p> <p>9 case-control studies reporting positive outcomes,</p> <p>10 the participants recalled the exposure to talc</p> <p>11 preceded the reported outcome. I mean that is so</p> <p>12 far afield from any realistic epidemiologic</p> <p>13 principle that to say that that somehow informs a</p> <p>14 Bradford Hill analysis -- I don't know, maybe</p> <p>15 "crazy" is the wrong word. Maybe absurd, maybe</p> <p>16 ridiculous. But every person in the world that</p> <p>17 has a particular event or outcome, everything</p> <p>18 about them preceded them. That isn't the same as</p> <p>19 temporality. Temporality in the epidemiologic</p> <p>20 world is demonstrating that time flowed from the</p> <p>21 time of the exposure.</p> <p>22 So, that's why I say like -- you know, I</p> <p>23 read the words here, I see consistency,</p> <p>24 specificity, and so forth, but I don't think their</p> <p>25 application to this is actually a legitimate</p>	<p style="text-align: right;">Page 272</p> <p>1 Did I read that correctly?</p> <p>2 MS. BROWN: You didn't, and actually you</p> <p>3 said "consistently" and the word is "consistent."</p> <p>4 MS. PARFITT: Thank you.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Did I read that correctly with that</p> <p>7 correction?</p> <p>8 A Yes.</p> <p>9 Q Okay. Do you see where the authors</p> <p>10 state that, "Further available data are indicative</p> <p>11 of a causal effect"? Do you see that?</p> <p>12 A I do.</p> <p>13 Q Do you agree with Health Canada that</p> <p>14 there was a causal effect drawn from the genital</p> <p>15 use of talcum powder products and ovarian cancer?</p> <p>16 MS. BROWN: Objection to the form,</p> <p>17 misstates the draft assessment, lacks foundation.</p> <p>18 THE WITNESS: I don't think so, but for</p> <p>19 the reason that -- being that this is -- this is</p> <p>20 at some level -- maybe it's a summary, I don't</p> <p>21 know -- of what they have from above. But their</p> <p>22 input information into what they're concluding</p> <p>23 here is not good. Right.</p> <p>24 I mean look -- look up a couple of</p> <p>25 sentences under "Biologic plausibility," and they</p>
<p style="text-align: right;">Page 271</p> <p>1 Bradford Hill analysis.</p> <p>2 Q All right. So it's absurd, it's crazy,</p> <p>3 and your opinion is that they did not do a proper</p> <p>4 Bradford Hill analysis. Is that your opinion?</p> <p>5 A It is.</p> <p>6 MR. LOCKE: Objection.</p> <p>7 MS. BROWN: Objection to the form.</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Okay. All right. Let me direct -- did</p> <p>10 they -- let me direct your attention to page 21.</p> <p>11 And we'll put that up on the ELMO.</p> <p>12 All right. Do you see that? Okay?</p> <p>13 A I'm on page 21.</p> <p>14 Q Page 21, and it's the last paragraph,</p> <p>15 and I'll read it.</p> <p>16 "The most recent meta-analysis detailed</p> <p>17 above, Taher, et al., 2018, and consistent with</p> <p>18 the Hill criteria, suggests a small but</p> <p>19 consistently statistically significant positive</p> <p>20 association between ovarian cancer and perineal</p> <p>21 exposure to talc. Further available data are</p> <p>22 indicative of a causal effect. A clear point of</p> <p>23 departure could not be derived from the available</p> <p>24 literature. Consequently, hazard characterization</p> <p>25 is qualitative in nature."</p>	<p style="text-align: right;">Page 273</p> <p>1 say: "The presence of talc in the ovaries has</p> <p>2 been documented," and cite Heller. And they say,</p> <p>3 "The evidence of retrograde transport supports the</p> <p>4 biologic plausibility."</p> <p>5 That Heller study doesn't -- doesn't</p> <p>6 support that, right. So they're -- they're</p> <p>7 stringing things together here that don't</p> <p>8 literally support I think a conclusive statement</p> <p>9 here.</p> <p>10 And also I would just say too, that when</p> <p>11 they say that -- that with the last part of that</p> <p>12 part you read where it says that "The hazard</p> <p>13 characterization is qualitative in nature," well,</p> <p>14 "qualitative" doesn't tell you something about</p> <p>15 whether it's a strong association. I mean they --</p> <p>16 they've resisted using that -- that word here.</p> <p>17 BY MS. PARFITT:</p> <p>18 Q Okay. So my question for you,</p> <p>19 Dr. Diette, is do you disagree with the draft</p> <p>20 Health Canada assessment which found that there</p> <p>21 was a causal relationship between the use of</p> <p>22 genital talcum powder products and ovarian cancer?</p> <p>23 MS. BROWN: Objection. That's not what</p> <p>24 the draft assessment --</p> <p>25 MS. PARFITT: Counsel, objection, form.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 274</p> <p>1 MS. BROWN: You're -- it misstates the 2 document intentionally attempting to mislead the 3 witness. 4 MS. PARFITT: Objection. 5 THE WITNESS: So I -- first of all, 6 so -- 7 BY MS. PARFITT: 8 Q And, Doctor, let me just say something. 9 You can explain, but -- I have a question, and 10 then you can explain it if you wish. 11 And my question is, do you disagree with 12 the draft Health Canada assessment which found or 13 concluded that there was a causal relationship 14 between the use of genital talcum powder product 15 and ovarian cancer? 16 MR. LOCKE: Objection. 17 MS. BROWN: Objection to the form. 18 You can answer it truthfully and 19 accurately. 20 THE WITNESS: I can't answer it. 21 BY MS. PARFITT: 22 Q You can't -- wait one second. 23 A I cannot answer it. 24 Q You can't answer the question as to 25 whether or not you agree that they concluded that</p>	<p style="text-align: right;">Page 276</p> <p>1 talcum powder products used in the genital area 2 and ovarian cancer? That's the question. 3 MS. BROWN: Objection to the form of the 4 question, misstates the document -- 5 BY MS. PARFITT: 6 Q You may answer. 7 A Is there a specific sentence in there 8 that says that? 9 Q It's the question that I've asked you. 10 A Oh, so I can't answer it. I can answer 11 the -- 12 Q Is there a specific question -- 13 MS. BROWN: Wait, wait, let him finish. 14 BY MS. PARFITT: 15 Q -- 20, 21, 28, and Roman numeral iii? 16 MS. BROWN: What? 17 THE WITNESS: If there's a specific 18 sentence that says that, and you want me to agree 19 or disagree, I can agree or disagree with that 20 sentence. 21 What I can't agree with is an entire 22 document because I think it's not fair. I'm not 23 talking about just this one. I think, you know, 24 lawyers like to do this, right. They like to say, 25 Do you agree with a such-and-such paper. Well,</p>
<p style="text-align: right;">Page 275</p> <p>1 there was a causal relationship between talcum 2 powder products and ovarian cancer? 3 A So that -- 4 MS. BROWN: Objection to the form, 5 misstates the document. 6 Go ahead, Doctor. 7 THE WITNESS: Yeah, your question has 8 morphed, right. And so I'm still stuck on the way 9 it came out when you first said it. 10 BY MS. PARFITT: 11 Q Then let's go -- we'll go with the one 12 the -- 13 MS. BROWN: Wait, let him finish. 14 MS. PARFITT: No. Excuse me. 15 MS. BROWN: Counsel, you've been doing 16 that all day. You cannot cut this witness off. 17 He needs to finish. 18 MS. PARFITT: I'm not -- he asked for 19 what question I wanted to ask, so let me ask it 20 again. 21 BY MS. PARFITT: 22 Q Do you have -- is it -- do you -- strike 23 that. 24 Do you agree or disagree with Health 25 Canada and their assessment of causality between</p>	<p style="text-align: right;">Page 277</p> <p>1 it's nonsense. You don't agree with the paper. 2 You agree with the finding or you agree with the 3 conclusion, but not with the entire thing. 4 So here what I'm saying is, there's an 5 entire document here. There's some good stuff and 6 some bad stuff, and I can point out some of -- 7 some of each. 8 But the point here is if there's a 9 specific statement that they made that says -- 10 about causation, I would just like to see that 11 particular statement and tell you whether I can 12 agree with it or not. 13 BY MS. PARFITT: 14 Q Well, look at page 28 -- or excuse me, 15 21, the page we were on. 16 Do you have that in front of you? 17 A I do. 18 Q Okay. "Available data are 19 indicative" -- 20 MS. BROWN: Counsel, where are you? 21 MS. PARFITT: It's the paragraph just 22 above "Exposure Assessment." It says the recent 23 -- we just read it. 24 BY MS. PARFITT: 25 Q "The most recent meta-analysis detailed</p>

70 (Pages 274 to 277)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 278</p> <p>1 above, Taher, and consistent with the Hill</p> <p>2 criteria, suggests a small but consistent</p> <p>3 statistically significant positive association</p> <p>4 between ovarian cancer and perineal exposure to</p> <p>5 talc. Further available data are indicative of a</p> <p>6 causal effect."</p> <p>7 MS. BROWN: What's the question?</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Do you agree with the conclusions of</p> <p>10 Health Canada?</p> <p>11 MS. BROWN: Objection to the form. This</p> <p>12 is not the conclusion section.</p> <p>13 THE WITNESS: So, first of all, the --</p> <p>14 the first sentence that you read there talks about</p> <p>15 a significant positive association, which isn't</p> <p>16 the same as cause. Right. And then they say,</p> <p>17 "Further available data are indicative of..."</p> <p>18 I -- I think if you're trying to say</p> <p>19 that something causes something, you come out and</p> <p>20 you say it. You don't say, "Further data are</p> <p>21 indicative of it." So I -- I don't think this</p> <p>22 statement says talcum powder causes ovarian</p> <p>23 cancer.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. So your quarrel with Health</p>	<p style="text-align: right;">Page 280</p> <p>1 A That sentence is there.</p> <p>2 Q All right. Okay.</p> <p>3 MS. BROWN: Counsel, if you're moving to</p> <p>4 another area, would --</p> <p>5 MS. PARFITT: I am.</p> <p>6 MS. BROWN: Would this be a good time</p> <p>7 for a break?</p> <p>8 MS. PARFITT: Yeah. I'm going to move</p> <p>9 on and change gears.</p> <p>10 THE VIDEOGRAPHER: The time is 1:52</p> <p>11 p.m., and we are off the record.</p> <p>12 (Recess.)</p> <p>13 THE VIDEOGRAPHER: The time is</p> <p>14 2:04 p.m., and we're back on the record.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Dr. Diette, you mentioned before the</p> <p>17 break the Heller article, and so I don't misquote</p> <p>18 you, what was your position with regard to Heller</p> <p>19 and what it stood for?</p> <p>20 A I think if we're talking about the --</p> <p>21 the right one, it's the one where the ovaries were</p> <p>22 removed from, I think, 24 women, and that 12 -- 12</p> <p>23 had said that they were talcum powder users and 12</p> <p>24 not, but they found a -- they found a similar</p> <p>25 amount of talc in ovaries regardless of whether</p>
<p style="text-align: right;">Page 279</p> <p>1 Canada is the fact that they didn't say it, Talcum</p> <p>2 powder products used in the genital area cause</p> <p>3 ovarian cancer.</p> <p>4 A Well --</p> <p>5 Q You quarrel with their language. Is</p> <p>6 that what you're saying?</p> <p>7 A Well, I quarrel --</p> <p>8 MS. BROWN: Objection. Misstates his</p> <p>9 testimony.</p> <p>10 THE WITNESS: I quarrel a little with</p> <p>11 you, I think -- I'm sorry.</p> <p>12 THE REPORTER: I'm sorry, your --</p> <p>13 MS. BROWN: I just want to object to the</p> <p>14 question as misstating your testimony.</p> <p>15 THE WITNESS: Because I think your</p> <p>16 initial question before you read it literally was</p> <p>17 about whether or not they said that it causes it,</p> <p>18 and I don't think that it said that.</p> <p>19 And -- and I think otherwise that there</p> <p>20 are some flaws in the -- in the information that</p> <p>21 they've used up above to reach this -- I guess</p> <p>22 it's a conclusion. I don't know if it is or not.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. Does it say, "Further available</p> <p>25 data are indicative of a causal effect"?</p>	<p style="text-align: right;">Page 281</p> <p>1 they were users or not.</p> <p>2 Q Okay. Is -- is it your opinion that</p> <p>3 talc cannot migrate to the ovaries?</p> <p>4 A I don't know that it can. I -- if it's</p> <p>5 found there, I'm not sure how it got there.</p> <p>6 Q Is it your opinion that asbestos can</p> <p>7 migrate to the ovaries?</p> <p>8 MS. BROWN: Objection to the form.</p> <p>9 THE WITNESS: I've seen -- I don't think</p> <p>10 I've seen anything that shows for sure that it</p> <p>11 can.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q Okay. If asbestos was found in the</p> <p>14 ovaries, how would it get there?</p> <p>15 MS. BROWN: Objection to the form.</p> <p>16 THE WITNESS: So I don't know. I mean,</p> <p>17 it's -- I don't know of a worked-out mechanism</p> <p>18 that shows how it got there.</p> <p>19 (Diette Exhibit No. 15 was marked</p> <p>20 for identification.)</p> <p>21 BY MS. PARFITT:</p> <p>22 Q Let me show you what's been marked as</p> <p>23 Heller Exhibit No. 15. And it is a 1996 article</p> <p>24 entitled "Asbestos Exposure and Ovarian Fiber</p> <p>25 Burden."</p>

71 (Pages 278 to 281)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 282</p> <p>1 (Counsel conferring.)</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Do you have that in front of you?</p> <p>4 A I do.</p> <p>5 Q All right. Now, this was a different</p> <p>6 Heller article than the one you were referring to?</p> <p>7 A Thank you, yes.</p> <p>8 Q Okay. All right. Now, let me direct</p> <p>9 your attention to the Abstract section, the last</p> <p>10 paragraph.</p> <p>11 Okay. And it states: "This study</p> <p>12 demonstrates that asbestos can reach the ovary.</p> <p>13 Although the number of subjects is small, asbestos</p> <p>14 appears to be present in ovarian tissue more</p> <p>15 frequently and in higher amounts in women with a</p> <p>16 documentable exposure history."</p> <p>17 Did I read that correctly?</p> <p>18 A Yes.</p> <p>19 Q All right. Do you agree with that</p> <p>20 statement?</p> <p>21 MS. BROWN: Objection to the form.</p> <p>22 THE WITNESS: Give me one sec, because</p> <p>23 I -- it's been a while since I looked at this.</p> <p>24 MS. BROWN: Take your time, Doctor.</p> <p>25 THE WITNESS: (Peruses document.) Yeah,</p>	<p style="text-align: right;">Page 284</p> <p>1 A And it's about the middle of the</p> <p>2 paragraph, and it says it is -- it says -- right</p> <p>3 above it, it says: "None of the exposed subjects</p> <p>4 in the study was directly occupationally exposed</p> <p>5 but all were passively exposed to household</p> <p>6 contact. It is unclear why so many of the women</p> <p>7 giving no exposure history did have detectable</p> <p>8 asbestos in their ovaries, although it is known</p> <p>9 that there is a background level of asbestos in</p> <p>10 the lung tissue of non-exposed individuals."</p> <p>11 So I -- I don't know. I just don't --</p> <p>12 that this -- this cements the idea that -- that we</p> <p>13 know something about how asbestos, you know, can</p> <p>14 get to the ovaries.</p> <p>15 Q All right. Let me direct your attention</p> <p>16 to the bottom of 438, top of 439.</p> <p>17 At the bottom of 438, it says "There</p> <p>18 is," and then it goes on to the top of 439:</p> <p>19 "There is evidence of transport of particulate</p> <p>20 matter into the female perineum by the</p> <p>21 transvaginal route."</p> <p>22 A I apologize, I -- I'm not with you, and</p> <p>23 I just --</p> <p>24 Q Oh, sure.</p> <p>25 A I'm just trying to --</p>
<p style="text-align: right;">Page 283</p> <p>1 again, like -- so not entirely.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q What part -- what part --</p> <p>4 MS. BROWN: Let him finish.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q What part do you agree with?</p> <p>7 A Well, the -- I think that it's -- it's</p> <p>8 not -- well, so the study demonstrates that</p> <p>9 asbestos can reach the ovary. I guess if it's</p> <p>10 definitely there, then -- and it got there somehow</p> <p>11 and it wasn't through contamination, you know, of</p> <p>12 the procedure that -- that led to it, you could --</p> <p>13 you know, you could infer that there's some way</p> <p>14 that it got there.</p> <p>15 I think it doesn't tell us anything</p> <p>16 about how to make sense of that. And what I was</p> <p>17 looking for that I remember is that they said that</p> <p>18 it's unclear why so many women giving no exposure</p> <p>19 history did have detectable asbestos in their</p> <p>20 ovaries.</p> <p>21 Q Where do you see that?</p> <p>22 A I'm sorry. I'm on 439.</p> <p>23 Q Thank you.</p> <p>24 A And in the Conclusion paragraph.</p> <p>25 Q Mm-hmm. Yes.</p>	<p style="text-align: right;">Page 285</p> <p>1 Q It's right here, upper corner, 439.</p> <p>2 A Got you.</p> <p>3 Q Okay?</p> <p>4 A Yep.</p> <p>5 Q All right, again. "There is evidence of</p> <p>6 transport of particulate matter into the female</p> <p>7 perineum by the transvaginal route in both human</p> <p>8 and animal studies." It cites Egli and Newton,</p> <p>9 1961. It cites Henderson, 1986; Venter -- and I'm</p> <p>10 sure I'll destroy this name -- Iturralde, 1979;</p> <p>11 Whittemore, 1988. "Suggested that vaginal</p> <p>12 exposure to particulate matter such as asbestos</p> <p>13 and talc was a potential risk factor for</p> <p>14 intraperitoneal ovarian exposure. Her conclusion</p> <p>15 was based on finding that in talc exposed women, a</p> <p>16 previous history of hysterectomy or tubal</p> <p>17 ligation, which blocks perineum access, was</p> <p>18 protective against ovarian cancer."</p> <p>19 It goes on to say: "Talc has been</p> <p>20 implicated as a possible etiological agent in</p> <p>21 ovarian cancer," citing Harlow '89 and '92, "and</p> <p>22 is related to the asbestos problem in several</p> <p>23 ways. Aside from the chemical similarities</p> <p>24 between the two, many cosmetic talcs contained</p> <p>25 significant amounts of asbestos, particularly</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 286</p> <p>1 prior to '70 -- 1976, Cramer, 1982. The</p> <p>2 significance of this detection of talc in the</p> <p>3 majority of exposed women and in all women giving</p> <p>4 no exposure history is unclear and further studies</p> <p>5 are underway to further elucidate this question."</p> <p>6 Did I read that correctly?</p> <p>7 A Yes.</p> <p>8 Q Question: Are there chemical</p> <p>9 similarities between cosmetic talcs and asbestos?</p> <p>10 MS. BROWN: Objection to the form.</p> <p>11 THE WITNESS: So some of the same --</p> <p>12 some of the same features chemically are present</p> <p>13 in both.</p> <p>14 BY MS. PARFITT:</p> <p>15 Q All right. Set that aside for a minute.</p> <p>16 We may come back to that.</p> <p>17 Dr. Diette, for purposes of your</p> <p>18 opinions in this case, you have stated that the</p> <p>19 cohort studies lack statistical significance, and</p> <p>20 only a subset of the case-control studies are</p> <p>21 statistically significant. Therefore, there is a</p> <p>22 disparity and inconsistency between cohorts and</p> <p>23 case control.</p> <p>24 Have I summed it up pretty well?</p> <p>25 A That -- that's one of the -- one of the</p>	<p style="text-align: right;">Page 288</p> <p>1 If you know.</p> <p>2 THE WITNESS: Can I assume or --</p> <p>3 MS. BROWN: No, if you don't know, don't</p> <p>4 answer. Then you have no basis to answer the</p> <p>5 question.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q My question is, do you know what Ken</p> <p>8 Rothman's area of expertise is?</p> <p>9 MS. BROWN: Objection.</p> <p>10 THE WITNESS: Well, he's -- he's made a</p> <p>11 career out of -- out of case-control studies and</p> <p>12 articulating, you know, features of the design and</p> <p>13 so forth.</p> <p>14 BY MS. PARFITT:</p> <p>15 Q All right. Is he an epidemiologist?</p> <p>16 A Well, that's what I was trying to</p> <p>17 remember. Like, I would only be guessing. Like,</p> <p>18 I assume for him to be in that role, he would be,</p> <p>19 but there are people that come to epidemiology</p> <p>20 from other -- you know, other backgrounds, and so</p> <p>21 I just don't know his credentials.</p> <p>22 Q Okay. What about Sander Greenland, do</p> <p>23 you know who he is?</p> <p>24 A I know the name, but I don't know him.</p> <p>25 Q Okay. Have you ever -- do you know what</p>
<p style="text-align: right;">Page 287</p> <p>1 bits of evidence of inconsistency.</p> <p>2 Q Okay. Would you agree that to disregard</p> <p>3 study results based upon whether they are</p> <p>4 statistically significant or not statistically</p> <p>5 significant would be a mistake?</p> <p>6 MS. BROWN: Objection to the form.</p> <p>7 Counsel, is there something you're reading from</p> <p>8 that --</p> <p>9 MS. PARFITT: No. Actually, my notes,</p> <p>10 and he doesn't get those. Thank you.</p> <p>11 THE WITNESS: Okay. So "disregard" is</p> <p>12 pretty severe. Right. So I don't think that</p> <p>13 somebody should disregard any study, unless it's,</p> <p>14 you know, fraudulent or, you know, created out of</p> <p>15 nowhere. So I think that people should regard the</p> <p>16 findings and interpret them appropriately.</p> <p>17 So I think that would be an overly</p> <p>18 strong thing to do, which would be to disregard it</p> <p>19 simply because it's statistically insignificant.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Okay. Do you know who Ken Rothman is?</p> <p>22 A I -- I know of him. I don't know him</p> <p>23 personally.</p> <p>24 Q Okay. What does he do for a living?</p> <p>25 MS. BROWN: Objection to the form.</p>	<p style="text-align: right;">Page 289</p> <p>1 kind of scientist Sander Greenland is?</p> <p>2 MS. BROWN: Objection. Form.</p> <p>3 THE WITNESS: I do not.</p> <p>4 MS. BROWN: Foundation.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Okay. All right. Do you know Timothy</p> <p>7 Lash?</p> <p>8 MS. BROWN: Objection. Foundation.</p> <p>9 THE WITNESS: I don't know the name.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Okay. Do you know what kind of</p> <p>12 scientist Tim -- Timothy Lash is?</p> <p>13 MS. BROWN: Same objection.</p> <p>14 THE WITNESS: It would be hard to know</p> <p>15 that --</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Okay.</p> <p>18 A -- without knowing him.</p> <p>19 Q Okay. Let me show you what we will have</p> <p>20 marked as Exhibit No. -- 61? 16.</p> <p>21 MR. TISI: We're not that high.</p> <p>22 (Diette Exhibit No. 16 was marked</p> <p>23 for identification.)</p> <p>24 BY MS. PARFITT:</p> <p>25 Q And I will -- and I will represent,</p>

Gregory B. Diette, M.D.

Page 290	Page 292
<p>1 Dr. Diette, that this is Chapter 2 out of the 2 Third Edition, Modern Epidemiology. 3 Do you see that? 4 A I do. 5 Q Okay. And if you look at the front of 6 it, it has three authors. 7 Do you see that? 8 A I do. 9 Q Okay. The first one is Ken Rothman. Do 10 you see that? 11 A Correct. 12 Q The second one is Sander Greenland. 13 A Correct. 14 Q And the third author is Tim Lash. Do 15 you see that? 16 A I do. 17 Q And they are -- the book that they have 18 authored is called Modern Epidemiology, Third 19 Edition. Do you see that? 20 A I do. 21 Q Okay. Let me -- let me direct your 22 attention to page 27. 23 MS. BROWN: Counsel, are you going to 24 lay a foundation for the use of this document? 25 MS. PARFITT: I can just ask a question.</p>	<p>1 MS. BROWN: I have a continuing 2 foundation. 3 MS. PARFITT: That's fine, Counsel. 4 MS. BROWN: -- objection to this 5 exhibit, for which no foundation has been laid. 6 BY MS. PARFITT: 7 Q All right. Again, I'm referring to the 8 category consistency which I represent that is in 9 Chapter 2 of the Rothman book, and we can just go 10 ahead and circle the paragraph that starts: "One 11 mistake in implementing the consistency criterion 12 is so common that it deserves special mention. It 13 is sometimes claimed that a literature or set of 14 results is inconsistent simply because some 15 results are statistically significant, and some 16 are not." 17 Did I read that correctly? 18 A You did. 19 Q "This sort of evaluation is completely 20 fallacious, even if one accepts the use of 21 significant testing methods." 22 Did I read that correctly? 23 A You did. 24 Q All right. Do you agree with that 25 statement?</p>
Page 291	Page 293
<p>1 I can do that. 2 BY MS. PARFITT: 3 Q Let me ask a question. 4 "To claim that literature, scientific 5 literature, or a set of results reported in 6 scientific literature is inconsistent simply 7 because some results are statistically 8 significant, and some are not, would be completely 9 fallacious, even if one accepts the use of 10 significant testing methods." 11 Do you agree with that statement? 12 MR. LOCKE: Objection. 13 MS. BROWN: Objection. Form, 14 foundation. 15 THE WITNESS: Is that a hybrid of a 16 couple of things? Because I thought I was reading 17 with you, and then I might have left off. 18 BY MS. PARFITT: 19 Q Well, why don't we do this. We'll put 20 it back on the ELMO, and I'll represent that it is 21 a -- 22 A Yeah, I don't doubt you. I just -- 23 Q Sure, no worries. That's fine. 24 A It goes on to a different sentence. 25 Q That's fine.</p>	<p>1 MR. LOCKE: Objection. 2 THE WITNESS: So wait a minute, I just 3 want to -- so there's a couple of statements 4 there. I think the part that makes it agreeable 5 is to say that -- that if it's claimed that 6 results are -- and I'm paraphrasing -- 7 BY MS. PARFITT: 8 Q Sure. 9 A -- but that the results are inconsistent 10 simply, and the word "simply" to me is really 11 important here because it suggests that somebody 12 would be not looking at the entire universe of 13 evidence that they have available. 14 So I think if you just took a quick look 15 at studies and said some were significant and some 16 weren't and left it at that, you know, it's a 17 pretty strong statement, but I think -- I think 18 that would be a mistake to only do that. 19 Q All right. Now, you're not a 20 statistician, correct? 21 A I'm not a statistician. 22 Q Okay. And you're not a biostatistician. 23 A I'm not a biostatistician. 24 Q Okay. Do you know who Daniel Ford is? 25 A I do.</p>

Gregory B. Diette, M.D.

Page 294	Page 296
<p>1 Q Okay. Who is Daniel Ford?</p> <p>2 A If it's the one that --</p> <p>3 Q Daniel E. Ford.</p> <p>4 A I don't know his middle name, but</p> <p>5 there's a Dan Ford at our -- at our place.</p> <p>6 Q Okay. Is the Dan Ford you know vice</p> <p>7 dean for clinical investigation, Johns Hopkins</p> <p>8 School of Medicine?</p> <p>9 A Yes.</p> <p>10 Q Okay. Is he a friend of yours?</p> <p>11 A We're friendly. I mean, we don't hang</p> <p>12 out, though.</p> <p>13 Q Now, he is with the Institute for</p> <p>14 Clinical and Translational Research; is that</p> <p>15 correct?</p> <p>16 A He has been. I'm just trying to think</p> <p>17 if that still exists. Because I know there was a</p> <p>18 funding issue, so -- but he -- he certainly was in</p> <p>19 that role, and he may still be.</p> <p>20 Q He may what?</p> <p>21 A He may still be. I just -- I just -- I</p> <p>22 thought I had heard that the ICTRs were going to</p> <p>23 be not funded anymore.</p> <p>24 Q Okay.</p> <p>25 A Maybe it's true, maybe not; but I'm just</p>	<p>1 Q Do you know about that?</p> <p>2 A I'm aware of that.</p> <p>3 Q Okay. Now, are you -- did you read</p> <p>4 Dr. Bowman's deposition?</p> <p>5 A I did.</p> <p>6 Q Okay. Did you see that in Dr. Bowman's</p> <p>7 deposition?</p> <p>8 A I saw -- I'm just trying to remember. I</p> <p>9 saw the Nature article, I think that is more</p> <p>10 recently published than -- you said 2016?</p> <p>11 Q Originally, yes.</p> <p>12 A Yeah, but I can't remember if 2016 was</p> <p>13 in her deposition, but for sure the more recent</p> <p>14 one.</p> <p>15 Q The one in 2019?</p> <p>16 A Exactly right, yeah.</p> <p>17 Q All right. All right. Let me show you</p> <p>18 then what's been marked as -- or will be marked as</p> <p>19 17. And it is the March 2019 --</p> <p>20 (Counsel conferring.)</p> <p>21 BY MS. PARFITT:</p> <p>22 Q Okay. Let me show you what we will have</p> <p>23 marked as 17, a study that appeared in The</p> <p>24 American Statistician in 2019. It's Volume 73,</p> <p>25 and it's called "Moving to a World Beyond P <</p>
Page 295	Page 297
<p>1 saying for sure he was part of that.</p> <p>2 Q Mm-hmm. Okay. Sure. Okay.</p> <p>3 All right. Are you a member -- and I'm</p> <p>4 assuming you're not because you're not a</p> <p>5 statistician, but I should assume nothing.</p> <p>6 Are you a member of the American</p> <p>7 Statistical Association?</p> <p>8 A I am not.</p> <p>9 Q Okay. Do you know who they are?</p> <p>10 A Not -- not really. I mean, it -- it</p> <p>11 sounds like the name gives them away, but I</p> <p>12 don't -- I don't know, you know, who they are as</p> <p>13 an entity otherwise.</p> <p>14 Q That's fair. Okay.</p> <p>15 Are you aware that due to a widespread</p> <p>16 misuse by scientists and researchers regarding</p> <p>17 statistical significance and p-values, that the</p> <p>18 American Statistical Association issued a</p> <p>19 statement back in 2016 warning the scientific</p> <p>20 community of this misuse and urging them to cease</p> <p>21 and desist with the p-value?</p> <p>22 MR. LOCKE: Objection.</p> <p>23 MS. BROWN: Objection to the form, lacks</p> <p>24 foundation, misrepresents the facts.</p> <p>25 BY MS. PARFITT:</p>	<p>1 0.05."</p> <p>2 Do you see that?</p> <p>3 A Actually, I was just sort of flipping</p> <p>4 through to see what I'm looking at. Oh, so the</p> <p>5 title, yes.</p> <p>6 Q Okay. Is this a document you were</p> <p>7 referring to?</p> <p>8 A No.</p> <p>9 Q No?</p> <p>10 A I was referring to the one in Nature</p> <p>11 that I think reports about this.</p> <p>12 Q Yes. Okay. Let's go ahead and get that</p> <p>13 marked, and we'll talk about all three.</p> <p>14 (Diette Exhibit No. 17 was marked</p> <p>15 for identification.)</p> <p>16 MS. PARFITT: Let's have marked as</p> <p>17 Exhibit No. 18.</p> <p>18 (Diette Exhibit No. 18 was marked</p> <p>19 for identification.)</p> <p>20 BY MS. PARFITT:</p> <p>21 Q And I will represent that 18 is a Sander</p> <p>22 Greenland article that appeared in Nature on</p> <p>23 March 2019.</p> <p>24 Okay. Is that the article you were</p> <p>25 referring to?</p>

75 (Pages 294 to 297)

Gregory B. Diette, M.D.

Page 298	Page 300
<p>1 A Yes.</p> <p>2 Q Okay. Have you had an opportunity to</p> <p>3 read Exhibit No. 18?</p> <p>4 A I have.</p> <p>5 Q Okay. Exhibit 17, which is the</p> <p>6 Wasserstein article, have you had an opportunity</p> <p>7 to read it prior to today?</p> <p>8 A This -- this one, no.</p> <p>9 Q Okay. All right. Let's first take a</p> <p>10 moment and discuss what's been marked as 18.</p> <p>11 Excuse me. No, 18. 18.</p> <p>12 Are you aware that due to the American</p> <p>13 Statistical Society's concern of the misuse of</p> <p>14 statistical significance and p-value, that they</p> <p>15 literally used their March 2019 research paper and</p> <p>16 devoted attention to this issue and attached</p> <p>17 almost 40 papers on statistical inference? Are</p> <p>18 you aware of that?</p> <p>19 MR. LOCKE: Objection.</p> <p>20 MS. BROWN: Objection to the form,</p> <p>21 misstates the facts. Are you referring to</p> <p>22 Exhibit 17?</p> <p>23 MS. PARFITT: No. 17. 17.</p> <p>24 MS. BROWN: Yes, 17.</p> <p>25 MS. PARFITT: No, I'm not referring to</p>	<p>1 MS. BROWN: -- before you ask him any</p> <p>2 questions about it.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q I just have a couple of questions about</p> <p>5 it.</p> <p>6 MS. BROWN: Take as long as you need.</p> <p>7 THE WITNESS: (Peruses document.)</p> <p>8 BY MS. PARFITT:</p> <p>9 Q And I just have a couple of questions</p> <p>10 about it.</p> <p>11 A Sure.</p> <p>12 MS. BROWN: He's never seen it, so he</p> <p>13 needs --</p> <p>14 MS. PARFITT: That's fine.</p> <p>15 MS. BROWN: -- as long as he needs.</p> <p>16 MS. PARFITT: He can take -- yeah.</p> <p>17 THE WITNESS: Well, I won't be able to</p> <p>18 read it in --</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Okay. Let me just --</p> <p>21 A -- in realtime today.</p> <p>22 Q -- ask you a couple of questions. I'm</p> <p>23 not expecting you to digest it.</p> <p>24 All right. The first paragraph, it</p> <p>25 says -- do you have it up there?</p>
Page 299	Page 301
<p>1 that at all. I'm just -- I'm asking a question.</p> <p>2 MS. BROWN: Objection. Lacks</p> <p>3 foundation, misstates the facts.</p> <p>4 THE WITNESS: I saw that there was a --</p> <p>5 a journal issue that had many articles. I</p> <p>6 didn't -- I don't know what the count was, but</p> <p>7 there -- it's probably the same thing we're</p> <p>8 talking about, but I'm not sure.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q Okay. Did you have a chance to read</p> <p>11 those 40 or so articles?</p> <p>12 MS. BROWN: Objection to the form.</p> <p>13 THE WITNESS: I -- I wish I had that</p> <p>14 kind of time, but --</p> <p>15 BY MS. PARFITT:</p> <p>16 Q You and me both.</p> <p>17 A Yeah.</p> <p>18 Q Okay. All right. Let's stay a few</p> <p>19 minutes on 17, and we'll put it up on the ELMO.</p> <p>20 And it starts --</p> <p>21 MS. BROWN: Counsel, he's never seen 17</p> <p>22 before, so he's going to need a minute to</p> <p>23 familiarize himself with it --</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Take a minute to familiarize yourself.</p>	<p>1 "Some of you exploring this special</p> <p>2 issue of The American Statistician might be</p> <p>3 wondering if it's a scolding from the pedantic</p> <p>4 statisticians lecturing you about what not to do</p> <p>5 with p-values, without offering any real ideas of</p> <p>6 what to do about the very hard problem separating</p> <p>7 signal from noise in data and making decisions</p> <p>8 under uncertainty. Fear not, in this issue,</p> <p>9 thanks to 43 innovative and thought-provoking</p> <p>10 papers from forward-looking statisticians, help is</p> <p>11 on the way."</p> <p>12 Do you see that?</p> <p>13 A I do.</p> <p>14 Q Okay. Did I read that correctly?</p> <p>15 A You did.</p> <p>16 Q And is that the 43 papers that you were</p> <p>17 speaking of that you didn't have time to read?</p> <p>18 MS. BROWN: Objection to the form, lacks</p> <p>19 foundation.</p> <p>20 THE WITNESS: I -- I think so. I mean,</p> <p>21 this sounds familiar. I think it's what I was</p> <p>22 looking at, but I'm not -- not a hundred percent</p> <p>23 sure.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. If you'd look at right under</p>

76 (Pages 298 to 301)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 302</p> <p>1 "Don't' is Not Enough." Do you see that?</p> <p>2 A Yes.</p> <p>3 Q All right. The first sentence says:</p> <p>4 "There's not much we can say here about the perils</p> <p>5 of p-values and significance testing that hasn't</p> <p>6 already -- that hasn't been said already for</p> <p>7 decades."</p> <p>8 Did I read that correctly?</p> <p>9 A Yes.</p> <p>10 Q And then it goes down to the first one:</p> <p>11 "Don't base your conclusions solely on whether an</p> <p>12 association or effect was found to be</p> <p>13 statistically significant. The p-value passed</p> <p>14 some arbitrary threshold such as $p < 0.05$."</p> <p>15 Did I read that correctly?</p> <p>16 A Yes.</p> <p>17 Q Do you agree with that statement?</p> <p>18 MR. LOCKE: Objection.</p> <p>19 THE WITNESS: So there's a lot to this,</p> <p>20 right. I mean because, I mean, the lead in to it,</p> <p>21 it says -- it says that there's not much to say</p> <p>22 here, you know --</p> <p>23 BY MS. PARFITT:</p> <p>24 Q That hasn't been said.</p> <p>25 A -- hasn't been said for decades.</p>	<p style="text-align: right;">Page 304</p> <p>1 statistical significance or lack thereof."</p> <p>2 Do you agree with that statement?</p> <p>3 MS. BROWN: Objection to the form.</p> <p>4 And, Doctor, if you need to read the</p> <p>5 whole article to answer these questions --</p> <p>6 MS. PARFITT: Counsel, don't coach the</p> <p>7 witness.</p> <p>8 MS. BROWN: -- you should do that.</p> <p>9 Yeah, but you are knowingly --</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Go ahead, Doctor.</p> <p>12 MS. BROWN: -- putting a document in</p> <p>13 front of him that he's never seen, so we're not</p> <p>14 going to sit here --</p> <p>15 BY MS. PARFITT:</p> <p>16 Q I'm asking you a question, Dr. Diette --</p> <p>17 MS. BROWN: -- and play cherry-</p> <p>18 picking statements to get --</p> <p>19 BY MS. PARFITT:</p> <p>20 Q -- do you agree that one should not</p> <p>21 conclude anything about scientific or practical</p> <p>22 importance based on statistical significance or</p> <p>23 lack thereof? Do you agree with that?</p> <p>24 MR. LOCKE: Objection.</p> <p>25 MS. BROWN: Same objection.</p>
<p style="text-align: right;">Page 303</p> <p>1 MS. BROWN: Wait, wait, let him finish.</p> <p>2 THE WITNESS: And -- and that's --</p> <p>3 that's pretty -- well, I can't say it's true</p> <p>4 because I haven't read this, so I don't know</p> <p>5 what's in here, but the debate about p-values and</p> <p>6 statistical significance isn't brand new. I mean,</p> <p>7 I've been talking about it with colleagues for</p> <p>8 decades, and I'm sure there were people decades</p> <p>9 before me. So that -- that part rings true.</p> <p>10 And I think -- you know, I don't know</p> <p>11 when they're talking about conclusions. That's</p> <p>12 a -- that's a pretty broad topic, but I think the</p> <p>13 word "solely" is very helpful there, that we</p> <p>14 shouldn't be making decisions solely on whether</p> <p>15 something is statistically significant. And</p> <p>16 there's more to it than that.</p> <p>17 BY MS. PARFITT:</p> <p>18 Q Okay.</p> <p>19 A But that's a -- that's a super broad</p> <p>20 statement, and I don't know, you know, in every</p> <p>21 circumstance whether that would be agreeable or</p> <p>22 not.</p> <p>23 Q Okay. Look at the last bullet there.</p> <p>24 It states: "Don't conclude anything about</p> <p>25 scientific or practical importance based on</p>	<p style="text-align: right;">Page 305</p> <p>1 THE WITNESS: So, anyway, I think by</p> <p>2 saying "don't conclude anything," I think makes</p> <p>3 this not a very agreeable statement for me.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Okay. All right. Let's turn to what</p> <p>6 you did read, and that's Exhibit 18.</p> <p>7 Do you have that, Doctor?</p> <p>8 A I do.</p> <p>9 Q Okay. And this is an article that</p> <p>10 appeared in Nature back in March of 2019, correct?</p> <p>11 A That's right.</p> <p>12 Q Okay. And you did have a chance to read</p> <p>13 this; is that correct?</p> <p>14 A I did.</p> <p>15 Q Okay. And under the section "Pervasive</p> <p>16 Problem," do you see that?</p> <p>17 A Yes.</p> <p>18 Q Okay. It states: "Let's be clear about</p> <p>19 what must stop. We should never conclude there is</p> <p>20 no difference or no association just because the</p> <p>21 p-value is larger than the threshold, such as</p> <p>22 0.05, or equivalently because a confidence</p> <p>23 interval includes zero. Neither should we</p> <p>24 conclude that two studies conflict because one had</p> <p>25 a statistically significant result and the other</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 306</p> <p>1 did not. These errors waste research efforts and 2 misinform policy decisions." 3 Did I read that correctly? 4 A You did. 5 Q Do you agree with that? 6 MS. BROWN: Objection to the form. 7 MR. LOCKE: Objection. 8 THE WITNESS: To me it's overly broad, 9 and I think that -- I think that if we go through 10 and we find a sentence or two in here that are 11 agreeable or not, there's a -- there's a much, 12 much bigger proposition here about what's going 13 on, and I don't think it boils down to any one of 14 these sentences. 15 And I think this looks like a passionate 16 opinion piece, right. That's calling it an 17 article, but it's a commentary. And, you know, 18 these guys might believe that, but I don't -- I 19 don't think it's a mainstream view, and it's not 20 my view, you know, without any qualifications 21 that -- that that statement is correct either. 22 Q Okay. Are you aware that over 800 23 statisticians and scientists signed on to this 24 document to push the concept of abandoning 25 statistical significance?</p>	<p style="text-align: right;">Page 308</p> <p>1 is that correct? 2 A I didn't. 3 MS. BROWN: Asked and answered. 4 BY MS. PARFITT: 5 Q All right. Now, let me have marked now 6 as Exhibit No. 19. 7 (Diette Exhibit No. 19 was marked 8 for identification.) 9 BY MS. PARFITT: 10 Q Do you have that, Doctor? 11 Take a look at that, if you will. 12 A (Peruses document.) So is this meant to 13 be a couple of things? 14 Q It's two things. I will represent to 15 you that the face sheet states "Johns Hopkins 16 Institute for Clinical and Translational 17 Research." The American Statistician special 18 issue, "Moving to a World Beyond P < 0.05." It's 19 dated March 25, 2019. It has The American 20 Statistician on the side. 21 A What are we -- I'm confused, though. 22 This is -- this is Exhibit 17 with something 23 attached to it or -- 24 Q You know, that's exactly it. And if you 25 look at Exhibit 19 --</p>
<p style="text-align: right;">Page 307</p> <p>1 MS. BROWN: Objection to the form. 2 MR. LOCKE: Objection. 3 THE WITNESS: I saw that. 4 BY MS. PARFITT: 5 Q Okay. You weren't one of those, were 6 you? 7 MS. BROWN: Objection to the form. 8 THE WITNESS: I'm not a statistician. 9 BY MS. PARFITT: 10 Q Okay. Well, but you use statistics in 11 your practice? 12 A I do. 13 Q Okay. Did anyone say you had to be a 14 statistician to sign on to that proposition? 15 A Well, I -- I thought I heard you say 16 statisticians. Maybe I -- I might have misheard. 17 I thought you said 800 statisticians. 18 Q I said there are about 800 statisticians 19 and other scientists that -- 20 A Oh, and other scientists. 21 Q -- yeah, that signed on to this. 22 A No, I didn't hear right. So I just -- 23 so I don't know what the criteria were for who 24 could sign or not sign. 25 Q Okay. You didn't sign on to it, though;</p>	<p style="text-align: right;">Page 309</p> <p>1 A Mm-hmm. 2 Q -- it is moving -- it states "Moving to 3 the World Beyond P" -- it's a special issue of The 4 American Statistician. The lead article calls for 5 abandoning the use of status -- statistically 6 significant, and offers much, not just one thing, 7 to replace it, written by Ron Wasserstein, Allen 8 Shirm, and Nicole Lazar. The coeditors of this 9 special issue summarize the content of the issue's 10 43 articles. 11 These articles -- and put this up 12 there -- discuss the use of p-values and 13 statistical significance that Johns Hopkins' 14 researchers may find beneficial, and it attaches 15 the full article, which is what's been marked as 16 Exhibit No. 17. 17 Do you see that? 18 A I do. 19 Q Okay. Did anyone share with you at 20 Johns Hopkins that their Clinical and 21 Translational Research group was disseminating the 22 article by Wasserstein, "Moving to a World Beyond 23 P < 0.05," and urging individuals not only to 24 abandon the use of statistical significance, but 25 to discuss the use of p-values and statistical</p>

Gregory B. Diette, M.D.

Page 310	Page 312
<p>1 significance with the researchers at Johns 2 Hopkins? 3 And that's a mouthful. So let me make 4 it really clear. 5 MS. BROWN: Let me object -- 6 MS. PARFITT: I move to strike the 7 question. 8 MS. BROWN: You're going to strike it? 9 MS. PARFITT: Yeah, let me strike it. 10 BY MS. PARFITT: 11 Q Were you aware, Dr. Diette, that the 12 division of Clinical and Translational Research 13 over at Hopkins had distributed to its scientists 14 this group of 43 articles, including the 15 Wassertine -- Wasserstein, for purposes of 16 educating them with regard to this concern over 17 the misuse of statistical significance? 18 MS. BROWN: I object to a complete 19 misrepresentation of the exhibit and to 20 foundation. 21 THE WITNESS: So I mean, there's a lot 22 of things, right. I'll try to answer as many as I 23 can. 24 So one is that I probably got something 25 because I'm -- I've been part of the ICTR, and I</p>	<p>1 read all 800, but I looked to see if there were 2 people from Hopkins in particular that signed it, 3 and I knew one of the two. 4 Q Okay. Let me show you what we'll have 5 marked as Exhibit No. 20. And I will represent to 6 you that it is a list of the 800 signatories that 7 joined together to support this movement to 8 abandon p-value in statistical significance. 9 (Diette Exhibit No. 20 was marked 10 for identification.) 11 MS. PARFITT: Again, Counsel, I 12 apologize. Apparently, we only have one copy of 13 this document. 14 MS. BROWN: So is it the blog soliciting 15 the signatures, or is it just the list? 16 MS. PARFITT: It is the list of 17 signatories. 18 MS. BROWN: Okay, that's fine. 19 BY MS. PARFITT: 20 Q Do you see that? 21 A I do. 22 Q Okay. Do you know an Elizabeth Ogburn? 23 A I don't. I saw her name on here, but 24 I -- I don't know her. 25 Q All right. Do you know Daniel</p>
Page 311	Page 313
<p>1 use the resources, I'm one of the people who 2 helped to write the grant to get it funded, and 3 so -- like I get a zillion things that fly by. 4 I don't know if I saw this or not, but I 5 probably wouldn't have clicked on if it came 6 through like an e-mail because I had already seen 7 it, like, as part of this -- as part of the Bowman 8 deposition. 9 BY MS. PARFITT: 10 Q Mm-hmm. 11 A But other than that, I mean, I think 12 it's -- I think they're smart to do it. They 13 should always put stuff out there for people to 14 read. It doesn't mean that we're going to get rid 15 of p of 0.05. It doesn't mean we're going to get 16 rid of statistical significance. They're just 17 saying it's an interesting read. 18 Q Do you know any of the signatories to 19 this particular document? 20 A I found one. One that I know 21 personally, and I'm just trying to remember if 22 there was anybody else that I saw. 23 Q Well, let me show you what we'll have 24 marked as Exhibit No. 20. 25 A Yeah, so let me just say, so I didn't</p>	<p>1 Sharfenstein (phonetic)? 2 A Sharfstein, and I know him. Yeah. 3 Q Okay. Is that -- do you know anyone 4 else that might appear on that list? 5 A I don't know. I didn't read it. I 6 just -- I literally just did a word search for 7 "Hopkins," and I came up with like one person 8 whose name is Hopkins who works in England, and 9 another one, something Hopkins Institute, which is 10 not, and then two from Johns Hopkins. 11 Q Okay. When did you do this research? 12 A In the last week. I mean, after -- 13 after reading the Bowman deposition. 14 Q All right. So you read the Bowman 15 deposition, and then you -- what caused you then 16 to -- to go back and look at that or for that? 17 A Well, because it sounds like an 18 interesting topic, and, you know, who knows, maybe 19 one day it either will or won't change, but it's 20 an interesting thing to read about. And so I 21 wanted to just sort of see what -- what you guys 22 were driving at. And then since I saw that there 23 were 800 signatories, I just figured I would see 24 if there was anybody at Hopkins that was part of 25 it or not.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 314</p> <p>1 Q Mm-hmm. And you found a couple of</p> <p>2 people from Hopkins?</p> <p>3 A Yeah, I found two. One I know, one I</p> <p>4 don't.</p> <p>5 Q All right. Again, you were not one of</p> <p>6 the signatories?</p> <p>7 A Still true, yeah.</p> <p>8 Q Okay. Okay. What position does</p> <p>9 Dr. Sharfstein hold within the University?</p> <p>10 MS. BROWN: Objection. Speculation.</p> <p>11 THE WITNESS: He's been in the</p> <p>12 Department of Biostatistics, and I don't know</p> <p>13 what -- what other ways to label what he -- what</p> <p>14 his positions are.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. From the time you saw the</p> <p>17 discussion about statistical significance and a</p> <p>18 movement away from that and did your bit of</p> <p>19 research, did you ever call Dr. Sharfstein to talk</p> <p>20 to him about it?</p> <p>21 A Not yet. I'm hoping I'll just run into</p> <p>22 him at some point and -- and ask him about that.</p> <p>23 Q Is the -- is your interest strong enough</p> <p>24 that you might reach out to him?</p> <p>25 MS. BROWN: Objection to the form.</p>	<p style="text-align: right;">Page 316</p> <p>1 significance and p-values?</p> <p>2 A Yeah, well, I'd say the real world,</p> <p>3 right. And the real world --</p> <p>4 Q I'm sorry. You're in the real world?</p> <p>5 A Real world, yeah.</p> <p>6 Q Okay. And what's the real world doing?</p> <p>7 A Well, the real world, if I want to write</p> <p>8 a grant, I have to provide people with a sample</p> <p>9 size estimate of what it is that I'm looking for,</p> <p>10 and the sample size estimate is almost always</p> <p>11 based on hypothesis testing. And you have to</p> <p>12 declare a certain p-value that you find to be a</p> <p>13 credible one.</p> <p>14 So I can't just say, I've decided</p> <p>15 because I read some editorial that I'm not going</p> <p>16 to use a p-value of 0.05. That I'm still stuck</p> <p>17 with 0.05 as a -- as an estimate. And so if I</p> <p>18 want to have any success getting a grant, I'm</p> <p>19 going to have to still use the rules that we've</p> <p>20 used for years.</p> <p>21 And if I publish a paper, I happened to</p> <p>22 look because I thought it was curious, I went on</p> <p>23 New England Journal's website --</p> <p>24 Q Yes.</p> <p>25 A -- and they have an extensive list of</p>
<p style="text-align: right;">Page 315</p> <p>1 What -- what interest are we talking about?</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Interest in this science that you have</p> <p>4 indicated yourself seems to be pretty important.</p> <p>5 MS. BROWN: Objection. That misstates</p> <p>6 his testimony by a lot.</p> <p>7 THE WITNESS: So it -- it might be. I</p> <p>8 mean, the -- the reason there's no urgency for me</p> <p>9 to do it is that I still live in the world in</p> <p>10 2019, and I'm still living in a world where</p> <p>11 hypothesis testing is the rule and p-values are</p> <p>12 part of what you're required to report if you're</p> <p>13 going to publish a paper in a credible journal.</p> <p>14 And so, you know, whether -- whether</p> <p>15 this gets traction or not, you know, we'll see. I</p> <p>16 don't know what the replacement is going to be. I</p> <p>17 don't know if chaos will ensue. It's an</p> <p>18 interesting topic to talk about, but it's sure not</p> <p>19 ready for prime time.</p> <p>20 So I think if I see Dan in the hall, I</p> <p>21 might ask him about it, but there's no -- there's</p> <p>22 no urgency to it.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q So what's the world you're living in</p> <p>25 with regard to the relevance of statistical</p>	<p style="text-align: right;">Page 317</p> <p>1 ways in order to represent your p-values and your</p> <p>2 confidence intervals that you have to adhere to if</p> <p>3 you want to publish your papers. You know, Nature</p> <p>4 said that they're not going to change their rules</p> <p>5 based on this.</p> <p>6 So, anyway, so it's like it's -- that's</p> <p>7 the world that we live in right now. If you want</p> <p>8 to communicate about -- about clinical science,</p> <p>9 then you're going to have to use the rules that</p> <p>10 we've learned to -- that we've learned to use.</p> <p>11 Q Do you know if the rules you've just set</p> <p>12 forth are the rules that Dr. -- or, excuse me,</p> <p>13 that Dr. Rothman and Sander Greenland, esteemed</p> <p>14 epidemiologists, promote in their practice?</p> <p>15 A I have no idea what they promote.</p> <p>16 Q Well, you read the article in Nature,</p> <p>17 didn't you?</p> <p>18 A Yeah, but you said "their practice." I</p> <p>19 don't even know what that is even.</p> <p>20 Q Well, who is the author of the Nature</p> <p>21 article?</p> <p>22 A We're talking about the -- the</p> <p>23 commentary?</p> <p>24 Q That's right.</p> <p>25 A Yeah. So it looks like Armhein,</p>

80 (Pages 314 to 317)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 318</p> <p>1 Greenland and McShane. Or maybe not. Maybe</p> <p>2 that's -- wait a minute, I could be wrong. No,</p> <p>3 it's -- it's those three.</p> <p>4 Q And again, you don't know -- do you know</p> <p>5 any of them? I know you don't know Dr. Greenland.</p> <p>6 Do you know any of the others?</p> <p>7 A I do not.</p> <p>8 Q Okay. So if I understand your opinion</p> <p>9 today, you still believe in the strength of a</p> <p>10 statistical significance versus not statistically</p> <p>11 significant?</p> <p>12 A It's --</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 THE WITNESS: It's still a factor to</p> <p>15 consider when either planning, conducting, or</p> <p>16 interpreting a study.</p> <p>17 BY MS. PARFITT:</p> <p>18 Q Okay. And do you still live in the</p> <p>19 world that there is a threshold of a p-value of</p> <p>20 0.05?</p> <p>21 A It depends.</p> <p>22 Q Well, what do you mean "it depends"?</p> <p>23 A I'm going to explain.</p> <p>24 Q Please.</p> <p>25 A So that's why I used the example of p at</p>	<p style="text-align: right;">Page 320</p> <p>1 took wasn't anything novel or different. I mean,</p> <p>2 I don't know at all what his plans are going</p> <p>3 forward, but he still works at the University</p> <p>4 where we still compete for NIH grants --</p> <p>5 Q Mm-hmm.</p> <p>6 A -- and I haven't seen any change in the</p> <p>7 NIH's posture on this, and I haven't seen any, you</p> <p>8 know, ground swell of support for just doing</p> <p>9 whatever you feel like in order to publish your</p> <p>10 paper.</p> <p>11 Q Well, are you suggesting that what</p> <p>12 Dr. Greenland and others and Dr. Wasserstein have</p> <p>13 suggested to do whatever you -- let me get your</p> <p>14 words -- shall -- yeah. Okay.</p> <p>15 MS. PARFITT: Tell you what, let's take</p> <p>16 a quick break. I want to find that part, and</p> <p>17 we'll get back. Let's take a quick break.</p> <p>18 THE VIDEOGRAPHER: The time is 2:44 p.m.</p> <p>19 We're going off the record.</p> <p>20 (Recess.)</p> <p>21 THE VIDEOGRAPHER: The time is 2:53</p> <p>22 p.m., and we're back on the record.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Dr. Diette, when we left just before the</p> <p>25 break, you said: "I haven't seen any ground swell</p>
<p style="text-align: right;">Page 319</p> <p>1 0.05, right? I could just say, I have decided</p> <p>2 that now I only want to do studies with six people</p> <p>3 in them, and I'll be happy to have a p-value of</p> <p>4 0.5. You'd have to wish me luck getting it</p> <p>5 published anywhere because it's not going to</p> <p>6 happen, right?</p> <p>7 So if I still want to do research and I</p> <p>8 still want to get it published, I'm going to have</p> <p>9 to pick a threshold for a p-value that's agreeable</p> <p>10 to the peer reviewers and to the editor. And it</p> <p>11 doesn't have to be 0.05. In some circumstances it</p> <p>12 might be 0.01. It might be even lower than that.</p> <p>13 But a -- but a p threshold is necessary, at least</p> <p>14 in our current era, if you want to be able to</p> <p>15 conduct and talk about your research.</p> <p>16 Q Do you -- do you think Dr. Sharfstein is</p> <p>17 going to now have difficulty having his scientific</p> <p>18 works published?</p> <p>19 MS. BROWN: Objection. Based on what?</p> <p>20 There's no foundation for that question.</p> <p>21 BY MS. PARFITT:</p> <p>22 Q You can answer the question, Doctor.</p> <p>23 A Well, exactly that. So -- so Sharfstein</p> <p>24 has been involved in some of our research and some</p> <p>25 critical illness stuff, and the approach that we</p>	<p style="text-align: right;">Page 321</p> <p>1 of support for doing whatever you feel like in</p> <p>2 order to publish your paper."</p> <p>3 I'm not talking about the publication of</p> <p>4 papers. What I would like to know from you is, do</p> <p>5 you agree, though, when you were evaluating the</p> <p>6 consistency of evidence, that one should not</p> <p>7 disregard studies that are nonstatistically</p> <p>8 significant and give greater weight to those that</p> <p>9 are statistically significant?</p> <p>10 MS. BROWN: Objection to the form of the</p> <p>11 question.</p> <p>12 THE WITNESS: I hear two questions</p> <p>13 there, and the first part I agree with, and the</p> <p>14 second part, it depends.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. Do you agree that when you are</p> <p>17 evaluating and weighing evidence, studies, that</p> <p>18 you should evaluate studies the same whether they</p> <p>19 are statistically significant or not statistically</p> <p>20 significant?</p> <p>21 MS. BROWN: Objection to the form. In</p> <p>22 what context?</p> <p>23 THE WITNESS: I don't know what</p> <p>24 "evaluate the same" means. I mean, I think any --</p> <p>25 any study that you think should be evaluated</p>

81 (Pages 318 to 321)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 322</p> <p>1 should be evaluated, you know, as thoroughly as</p> <p>2 you can.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q When you're evaluating the consistency</p> <p>5 of studies, is it proper epidemiology to consider</p> <p>6 those studies whether or not they are</p> <p>7 statistically significant or nonstatistically</p> <p>8 significant?</p> <p>9 MS. BROWN: Objection to the form.</p> <p>10 THE WITNESS: It is. And I think, you</p> <p>11 know, regardless of what Dr. Rothman has written,</p> <p>12 you know, it's part of the information that's</p> <p>13 available to you, and I think to ignore it would</p> <p>14 be, you know, not in your best interest.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. And would you agree that one</p> <p>17 should not conclude there is no association or no</p> <p>18 difference just because a -- one study is</p> <p>19 statistically significant and another study is</p> <p>20 significant?</p> <p>21 MS. BROWN: Objection to the form.</p> <p>22 THE WITNESS: And I agree with you,</p> <p>23 especially because you used "just because."</p> <p>24 BY MS. PARFITT:</p> <p>25 Q All right. So maybe -- what do you</p>	<p style="text-align: right;">Page 324</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Okay. Now, let's turn to -- your chart,</p> <p>3 and specifically the studies that you set forth in</p> <p>4 your report on pages 13 and 14.</p> <p>5 And if you'd go to your report, 13 and</p> <p>6 14.</p> <p>7 A I'm sorry, I've got somebody else's</p> <p>8 thing here.</p> <p>9 Q That's okay.</p> <p>10 A Okay.</p> <p>11 Q Okay. You got there? All right.</p> <p>12 What I would like -- all right. So you</p> <p>13 have that in front of you, correct, sir?</p> <p>14 A I do.</p> <p>15 Q Okay. Now, what I'll have marked as --</p> <p>16 for demonstrative purposes is a chart that we have</p> <p>17 marked as Diette Exhibit 21.</p> <p>18 (Diette Exhibit No. 21 was marked</p> <p>19 for identification.)</p> <p>20 BY MS. PARFITT:</p> <p>21 Q And let me hand that to you.</p> <p>22 MS. BROWN: Counsel, can you give a</p> <p>23 representation for the record about what</p> <p>24 Exhibit 21 is?</p> <p>25 MS. PARFITT: Yes, I was about to do</p>
<p style="text-align: right;">Page 323</p> <p>1 mean?</p> <p>2 A No, it's a good sentence. I mean, I --</p> <p>3 it -- I think that over and over what we're</p> <p>4 talking about is that -- that you shouldn't be</p> <p>5 wedded to the idea that statistical significance</p> <p>6 is the only feature that you look at, but it</p> <p>7 doesn't mean that you don't look at it.</p> <p>8 And so when you say that, you know, if</p> <p>9 you were just to hold up two studies, and one was</p> <p>10 significant and the other one wasn't and -- that</p> <p>11 wouldn't -- you know, you wouldn't be curious</p> <p>12 enough. You would need to know more about those</p> <p>13 studies to reach the conclusion you do.</p> <p>14 So I think, you know, looking at the</p> <p>15 whole study, looking how it's built, looking how</p> <p>16 it's interpreted, all that's important.</p> <p>17 Q All right. So it would not be proper to</p> <p>18 conclude the two studies conflict just because one</p> <p>19 was significant and one was statistically</p> <p>20 significant.</p> <p>21 MS. BROWN: Objection. Misstates</p> <p>22 testimony.</p> <p>23 THE WITNESS: It -- not -- not by</p> <p>24 itself, but that is at least one indicator of</p> <p>25 something that's different about those studies.</p>	<p style="text-align: right;">Page 325</p> <p>1 that.</p> <p>2 MS. BROWN: Thank you.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q Dr. Diette, on pages 13 and 14, you</p> <p>5 have -- of your report, you have listed I believe</p> <p>6 25 case-control studies, 3 cohort studies and --</p> <p>7 is that correct?</p> <p>8 MR. LOCKE: Objection.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q You've got 7 population studies on the</p> <p>11 back. That's on page 14. You have 25</p> <p>12 case-control -- hospital studies, rather, on</p> <p>13 page 14, and 25 studies on page 13. Is that</p> <p>14 correct?</p> <p>15 MR. LOCKE: Do you have a copy for --</p> <p>16 MS. PARFITT: Beg your pardon?</p> <p>17 MR. LOCKE: Do you have a copy for me,</p> <p>18 please?</p> <p>19 MS. PARFITT: Oh, Tom, I think we do,</p> <p>20 yeah.</p> <p>21 MR. LOCKE: Thank you. Is this a --</p> <p>22 does this come from a published --</p> <p>23 MS. PARFITT: No. Let me represent --</p> <p>24 no, let me represent that Exhibit No -- Exhibit 21</p> <p>25 is a demonstrative which lists all of the studies</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 326</p> <p>1 that Dr. Diette listed in his report on page 13 2 and 14 and has put them on a graph. 3 MS. BROWN: Who -- who put them on a 4 graph and what is the graph? 5 MS. PARFITT: Counsel -- 6 MS. BROWN: Well, I'm going to have an 7 objection to this document, and I just want to -- 8 MS. PARFITT: You can. You can object 9 to this -- 10 MS. BROWN: -- make sure I'm properly 11 objecting, because I don't know what it is, who 12 made it, based on what, and to the extent the 13 doctor needs the underlying studies to answer your 14 questions. We'll -- 15 MS. PARFITT: Counsel, no speaking 16 objections. 17 MS. BROWN: I just want to object to 18 this. 19 BY MS. PARFITT: 20 Q Dr. Diette -- 21 MS. PARFITT: I understand, Counsel. I 22 know what you're doing. 23 MS. BROWN: The name is Diette. 24 MS. PARFITT: Diette? 25 MS. BROWN: Diette.</p>	<p style="text-align: right;">Page 328</p> <p>1 MS. PARFITT: Yeah, there you go. 2 There you go, Doctor. 3 BY MS. PARFITT: 4 Q Doctor, I've handed you what's marked as 5 Exhibit 22. It is the -- an article by Patricia 6 Hartge dated 1983 in JAMA. Do you see that? 7 A I do. 8 Q Okay. And at the top of the study, she 9 has a table entitled "Estimated Relative Risk." 10 Do you see that? 11 A I do. 12 Q And I'll put this up on the ELMO. 13 MS. PARFITT: Okay. And it's hard to 14 see. We'll have to zero in there. There you go. 15 Okay. 16 BY MS. PARFITT: 17 Q You'll see on your chart you had listed 18 for Hartge, 1983, a relative risk of 0.7 with a 19 confidence interval of 0.40 to 1.10. 20 Do you see that? 21 A Uh -- 22 Q Look at your -- 23 A I do, yep. 24 Q -- on page 14. 25 Okay. Now, look at the table of the</p>
<p style="text-align: right;">Page 327</p> <p>1 MS. PARFITT: Diette. 2 BY MS. PARFITT: 3 Q I'm sorry, Dr. Diette. I'm not doing it 4 to annoy you. 5 A You've had it -- you've had it right all 6 day. You're good. 7 Q Thank you. Thank you. I appreciate 8 that. 9 What I will represent to you, and you 10 can track it, Dr. Diette, that Exhibit No. 21 11 represents the sales studies you selected for 12 purposes of your expert report. It lists them 13 study by study. It plots them on a forest plot on 14 the right-hand side. 15 Do you see that? 16 A I do. 17 Q Okay. And I'll represent that we took 18 your relative risks and confidence intervals, and 19 simply extracted those and put them on Exhibit 21 20 with one exception. 21 What I'd like you to do is look at 22 Hartge. And we will have that marked as 23 Exhibit 22. 24 (Diette Exhibit No. 22 was marked 25 for identification.)</p>	<p style="text-align: right;">Page 329</p> <p>1 Hartge study under "Genital Talc Use." 2 Do you see that? 3 A I do. 4 Q Okay. And do you see where Dr. Hartge 5 reports that the relative risk for genital use 6 talcum powder is not what you have as 0.7, but 2.5 7 with a confidence interval of 0.7 to 10. 8 Do you see that? 9 A I do. 10 Q All right. So that would be an error in 11 your chart; is that correct? 12 MS. BROWN: Objection. 13 Doctor, take as long as you need to look 14 at what counsel is asking you about. 15 And -- 16 MS. PARFITT: Counsel -- 17 MS. BROWN: -- Counsel, do you mean 18 to -- 19 MS. PARFITT: Counsel -- 20 MS. BROWN: -- misrepresent the 21 paragraph? 22 MS. PARFITT: No, Counsel. And, listen, 23 if the Doctor doesn't have any questions -- he's a 24 very intelligent man as we've seen today -- 25 MS. BROWN: I know, but what you're</p>

83 (Pages 326 to 329)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 330</p> <p>1 saying is not right. 2 MS. PARFITT: Counsel, that's it. No. 3 I'm sorry. 4 MS. BROWN: Are you intentionally 5 misrepresenting what's in the paper? 6 MS. PARFITT: Counsel, if you heard my 7 question -- I think Dr. Diette understands the 8 question. 9 BY MS. PARFITT: 10 Q Dr. Diette, we have on the table a 11 genital use, which is 2.5 with a confidence 12 interval of 0.7 to 10. 13 Do you see that? 14 A Yeah, I'm sorry. Can you give me just 15 one second? 16 Q Okay. Of course I can. 17 A Thank you. (Peruses document.) 18 Yeah, I'm with you. 19 Q Okay. And the only correction I -- I 20 wish to make is that, instead of the 0.70 that you 21 have for Hartge, it should be 2.5 -- 22 MS. BROWN: Objection. 23 BY MS. PARFITT: 24 Q -- for the genital -- 25 MS. PARFITT: Let me finish, Counsel.</p>	<p style="text-align: right;">Page 332</p> <p>1 MS. BROWN: Okay. Then let him -- 2 MS. PARFITT: I just don't want you 3 coaching -- 4 MS. BROWN: -- answer the question. 5 MS. PARFITT: -- and touching the paper 6 and pointing at things. 7 MS. BROWN: You are intentionally 8 misreading this document. 9 BY MS. PARFITT: 10 Q Doctor -- all right, Dr. Diette, you're 11 the one I'm interested in hearing from, to be 12 perfectly candid. 13 My question is, are the -- is the 14 relative risk that you have listed for Hartge 15 0.70, or should it be 2.5? 16 A You know, the -- the study report is 17 really tough I think to decide that either one of 18 them is ideal. And for a couple of reasons, and 19 one is just because this -- this genital with an 20 asterisk, it isn't literally just genital 21 application. It includes sanitary napkins. 22 And you can see in a lot of the studies 23 that people have sort of broken out sanitary 24 napkin use separate from like perineal 25 application.</p>
<p style="text-align: right;">Page 331</p> <p>1 BY MS. PARFITT: 2 Q -- for the genital use of talc. Do you 3 agree with that? 4 MS. BROWN: Objection to the form. 5 THE WITNESS: So, maybe. I'm just 6 trying to think about how I got -- 7 BY MS. PARFITT: 8 Q Sure. 9 A -- got here. Because the -- you know, 10 the text says that it's -- there were ten users, 11 so I guess like seven cases and three controls. 12 Q Mm-hmm. 13 A It said -- specifically mentioned use on 14 sanitary napkins, underwear, or the genital area. 15 But then it says -- but estimated is 16 2.5, but the small number of exposed women yielded 17 an unreliable estimate. So I -- 18 MS. BROWN: It's -- 19 THE WITNESS: Yeah -- 20 MS. PARFITT: You don't have to show the 21 doctor. 22 MS. BROWN: Do you want the truth on the 23 record, or do you want -- 24 MS. PARFITT: You know, I really do want 25 the truth.</p>	<p style="text-align: right;">Page 333</p> <p>1 And so, you know, that's not an ideal 2 measure for this -- this chart either. I mean, I 3 get your point, the all over is something else. 4 But there's at least -- you know, there's more 5 than ten people at least in that particular -- 6 that particular row. So I -- I'm not sure if 7 either of these is great, but they -- 8 Q Well, the analysis you went through, did 9 you go through that analysis for each and every 10 one of the studies that you listed when you made a 11 decision as to which odds ratio to select? 12 A I did. 13 Q You did. 14 A I mean, I tried to pick the one that -- 15 that fit the best. 16 Q Okay. And is the one that fits the best 17 for Hartge the 0.70, or is the one that fits the 18 best for Hartge the 2.5? 19 MS. BROWN: Objection to the form. 20 THE WITNESS: So I don't know. I mean 21 other than the fact that you've got the word 22 "genital" there, I mean "all over" is kind of 23 confusing, right, because it doesn't say like "all 24 over except the genitals," right. 25 And so that's where it gets kind of</p>

84 (Pages 330 to 333)

Gregory B. Diette, M.D.

Page 334	Page 336
<p>1 confusing is how you -- it's not a great study, 2 right. I mean, I'm not saying the study is not 3 great. I'm saying the report of the study doesn't 4 really tell us everything that you could really 5 wish to know. 6 BY MS. PARFITT: 7 Q So would you like to keep your chart 8 with the 0.70, or do you think the chart should be 9 modified to say 2.5? 10 MS. BROWN: Objection to the form. 11 THE WITNESS: I mean, I'd be happy to 12 put both rows there and just with an asterisk, and 13 explain, you know, what each one of those is. 14 BY MS. PARFITT: 15 Q Okay. Would you -- have you done that 16 for all the other studies that you've listed here, 17 wherein there may be data for sanitary napkins and 18 data for genital use and data for cornstarch? Did 19 you go through that analysis? 20 MS. BROWN: Objection to the form. 21 THE WITNESS: So, for this table I 22 haven't, but I have gone through all the sanitary 23 napkin findings that I can. And that's one of the 24 things you'll find in my handwritten notes from 25 the -- from the prior case.</p>	<p>1 you did, where is that contained in your report? 2 MS. BROWN: And you should feel free to 3 answer both questions since counsel cut you off. 4 THE WITNESS: I have no idea about what 5 you mean by where it is in the report. 6 BY MS. PARFITT: 7 Q Well, I only have RRs here. I have a 8 table. No analyses of the different case 9 controls. Just a table of their relative risks. 10 So, you've now gone through an analysis 11 of the Hartge case and said, You know, maybe this 12 is what we should have extracted, maybe we should 13 have looked at this, but I used my judgment and 14 put the 0.7. 15 And what I'm asking is, is that analyses 16 that you just did for us on the record the kind of 17 analysis that you did for all the other studies? 18 And if it was, where in the 51 pages of your 19 report or this chart have you included that 20 information? 21 MS. BROWN: Objection. Completely 22 misstates his testimony, as well as the article, 23 as well as the report, as well as the chart. 24 THE WITNESS: Let me just see. So 25 obviously it's not -- it's not documented, but I</p>
Page 335	Page 337
<p>1 In terms of cornstarch, that's a 2 different question. 3 BY MS. PARFITT: 4 Q And, Doctor, I -- 5 MS. BROWN: Wait, he needs to finish. 6 He's got to -- 7 BY MS. PARFITT: 8 Q Doctor, that's really not my question. 9 MS. BROWN: No, no, no, no, no, he -- 10 BY MS. PARFITT: 11 Q My question is this -- 12 MS. BROWN: Counsel. 13 MS. PARFITT: Counsel. 14 BY MS. PARFITT: 15 Q My question is -- 16 MS. BROWN: He has to finish the 17 question. 18 BY MS. PARFITT: 19 Q You're not answering my question. Mine 20 is a very simple one. 21 My question was -- if you'll be patient 22 with me, my question was: The analysis that 23 you've just talked about that you're going through 24 with Hartge, did you go through a similar analysis 25 for each and every one of these studies; and if</p>	<p>1 think part of what I'm trying to do is communicate 2 what the -- what the risks are that were reported 3 and what their confidence bounds were. 4 And so, you know, the papers stand for 5 themselves. They all exist. They're all cited. 6 We can look at anything we want. 7 I think in terms of the cornstarch 8 issue -- 9 BY MS. PARFITT: 10 Q Doctor, I'm not asking about -- 11 MS. BROWN: Stop cutting him off. 12 BY MS. PARFITT: 13 Q -- the cornstarch. We can talk about 14 that later. I'm not talking about cornstarch. 15 MS. BROWN: You cannot continue to cut 16 him off, or we'll have to call the Judge. 17 MS. PARFITT: I don't have a question 18 about cornstarch. 19 MS. BROWN: He's answering your 20 question. 21 MS. PARFITT: He is not. 22 MS. BROWN: You have to let him answer 23 or we have to call the Judge. You are 24 violating -- 25 MS. PARFITT: You can do it in your</p>

85 (Pages 334 to 337)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 338</p> <p>1 direct.</p> <p>2 MS. BROWN: No, you have to let him</p> <p>3 answer the question or --</p> <p>4 MS. PARFITT: Counsel.</p> <p>5 MS. BROWN: We're going off the record.</p> <p>6 MS. PARFITT: Do you want to go -- we'll</p> <p>7 go off the record right now.</p> <p>8 MS. BROWN: Yeah, let's go. Fine. Do</p> <p>9 we need to call the Judge? You have to let him</p> <p>10 answer.</p> <p>11 MS. PARFITT: We'll call her. We'll</p> <p>12 call her.</p> <p>13 THE VIDEOGRAPHER: The time is 3:09 p.m.</p> <p>14 We're going off the record.</p> <p>15 (A discussion was held off the record.)</p> <p>16 THE VIDEOGRAPHER: The time is</p> <p>17 3:10 p.m., and we're back on the record.</p> <p>18 MS. PARFITT: Thank you.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q And, Dr. Diette, all I'm trying to -- to</p> <p>21 ask, and obviously very poorly, is the analysis</p> <p>22 that you just discussed that you went through with</p> <p>23 Hartge, as we sat here today and you did it on the</p> <p>24 record, did you do that for all the other studies?</p> <p>25 A I tried to.</p>	<p style="text-align: right;">Page 340</p> <p>1 BY MS. PARFITT:</p> <p>2 Q Correct?</p> <p>3 A I did.</p> <p>4 Q Okay. And my last question is, is that</p> <p>5 the position you wish to take today?</p> <p>6 MS. BROWN: Objection to the form.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Or would you modify that and use a</p> <p>9 different relative risk? That's all.</p> <p>10 A I don't --</p> <p>11 MS. BROWN: Objection.</p> <p>12 THE WITNESS: I don't think anybody is</p> <p>13 well served by looking at this other number, other</p> <p>14 than if you're just trying to make a point and</p> <p>15 be -- you know, for a plaintiff or something to</p> <p>16 look at this 2.5.</p> <p>17 I think if you take this one that says</p> <p>18 there's a small number of exposed women, ten</p> <p>19 people, you know, that yields an unreliable</p> <p>20 estimate. I mean, somebody should fuss about that</p> <p>21 too. So that's not -- that's not an ideal</p> <p>22 measure.</p> <p>23 If it helps, we can put them on the</p> <p>24 table, and it wouldn't really change things,</p> <p>25 right. You've got confidence bounds from 0.7 to</p>
<p style="text-align: right;">Page 339</p> <p>1 Q Okay. And so you had to make</p> <p>2 determinations as to what relative risks to</p> <p>3 extract from those studies, correct?</p> <p>4 MS. BROWN: Objection to the form.</p> <p>5 THE WITNESS: I -- I had to work with</p> <p>6 what they reported.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Okay. And just like Hartge, they</p> <p>9 reported different pieces of information:</p> <p>10 Diaphragms used, no diaphragm, all over, genital,</p> <p>11 legs, feet, correct?</p> <p>12 A Correct.</p> <p>13 Q And you had to decide what was the most</p> <p>14 appropriate data to pull from those studies to</p> <p>15 include on your chart for relative risks, correct?</p> <p>16 A For the most --</p> <p>17 MS. BROWN: Objection to the form.</p> <p>18 THE WITNESS: Yes, of course.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Okay. So my question to you is, you</p> <p>21 chose for the Hartge, based upon that analysis, to</p> <p>22 use the -- any talc mentioned, which gave us a</p> <p>23 relative risk of 0.7, as opposed to genital, which</p> <p>24 would have represented a 2.5 risk.</p> <p>25 MS. BROWN: Objection to the form.</p>	<p style="text-align: right;">Page 341</p> <p>1 10. I mean, that's an enormous confidence value.</p> <p>2 So there's not a lot of information from those ten</p> <p>3 people.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q And the reason I ask as well, as you</p> <p>6 said earlier on in your deposition, you did not</p> <p>7 know for all these studies their sample size.</p> <p>8 A Oh, no, no, no. I didn't memorize it,</p> <p>9 but I've got all the studies, and it's a piece of</p> <p>10 cake, we can just go look at them and look at the</p> <p>11 sample size. I didn't want to, like -- I didn't</p> <p>12 want to, like, make -- this is already a long</p> <p>13 enough report. I don't need to put every bit of</p> <p>14 data from every study in it to have it make sense</p> <p>15 to me.</p> <p>16 Q So somewhere you have all the sample</p> <p>17 sizes pulled together for the various cases and</p> <p>18 controls for each one of these studies?</p> <p>19 A It's in every one of the studies.</p> <p>20 Q I know it's in each and every one of the</p> <p>21 studies, but did you document it on any kind of</p> <p>22 chart or anything like that?</p> <p>23 A For what?</p> <p>24 Q So that you could tell someone like me</p> <p>25 and the Court why you chose the data that you did.</p>

86 (Pages 338 to 341)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 342</p> <p>1 A We can just look at the studies. If I</p> <p>2 documented the sample size next to each one of</p> <p>3 these, it wouldn't tell you why I picked this</p> <p>4 particular relative risk.</p> <p>5 Q It would -- it would not offer valid</p> <p>6 information as to the relevance of those relative</p> <p>7 risks?</p> <p>8 A Oh, my gosh. I mean if you were</p> <p>9 interested in it, I could find it for you. It</p> <p>10 wasn't -- it wasn't important for me to</p> <p>11 communicate what I was trying to communicate.</p> <p>12 Q No, I -- it's a different question.</p> <p>13 Is sample size important when one is</p> <p>14 doing an analysis of a scientific study?</p> <p>15 A Yeah, that's why it's in the paper.</p> <p>16 Q Okay. Because if the sample size is too</p> <p>17 small, it may be underpowered; is that correct?</p> <p>18 MS. BROWN: Objection.</p> <p>19 THE WITNESS: Well, I don't know. I</p> <p>20 mean, if we're going to do power now, I think</p> <p>21 that's going to be a different -- a different</p> <p>22 conversation.</p> <p>23 The sample size being small can have all</p> <p>24 kinds of -- all kinds of impact. This to me is</p> <p>25 actually the most generous way to look at these</p>	<p style="text-align: right;">Page 344</p> <p>1 doesn't change anything about this exercise.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Okay. Well, I didn't select Hartge.</p> <p>4 You selected Hartge.</p> <p>5 A Well, I selected it because it exists.</p> <p>6 I mean, I -- my -- my goal was to find all the</p> <p>7 studies that exist.</p> <p>8 Q Okay.</p> <p>9 A I mean, I didn't invent it, right? I</p> <p>10 just -- I just looked at --</p> <p>11 Q Well, I just didn't want the record to</p> <p>12 reflect that I was selecting your data.</p> <p>13 A No, but you -- it sounds like you would</p> <p>14 prefer me to use that 2.5 from the ten people,</p> <p>15 instead of the 0.7 from the nearly hundred people.</p> <p>16 Q I have --</p> <p>17 A And I'm happy to look at them both. I</p> <p>18 mean they both tell us some information. It's not</p> <p>19 like, you know, one is ideal and the other isn't.</p> <p>20 But it really doesn't change the basic premise</p> <p>21 here.</p> <p>22 Q All right. So on my chart I have them</p> <p>23 both. I have 0.7 and 2.5. Do you see that?</p> <p>24 A Um --</p> <p>25 Q Right at the bottom there, "Genital use"</p>
<p style="text-align: right;">Page 343</p> <p>1 data, rather than picking at the same size. I</p> <p>2 mean, I can do that too, right? I can say, This</p> <p>3 is a crummy study because it's got 23 people, or</p> <p>4 this is crummy one -- that wasn't my goal. It</p> <p>5 wasn't to sort of tear down the -- the</p> <p>6 case-control studies.</p> <p>7 I was trying to have a balanced approach</p> <p>8 here, I think unlike the plaintiffs' experts, and</p> <p>9 I wasn't trying to say that this one particular</p> <p>10 design is awful and the other one is good. I was</p> <p>11 just trying to represent something about it in</p> <p>12 order to summarize it and communicate a point.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Okay. And your balanced approach was to</p> <p>15 take the lower, the 0.7 relative risk, rather than</p> <p>16 the 2.5 relative risk.</p> <p>17 A Oh, my goodness.</p> <p>18 MS. BROWN: Objection to the form.</p> <p>19 THE WITNESS: I -- I think -- I mean, I</p> <p>20 think this little article, that doesn't even fit</p> <p>21 on an entire page, gives us so little information</p> <p>22 about what to do, and I think my point about there</p> <p>23 being ten people that provide a relatively</p> <p>24 uninformative risk, it's not great. If you want</p> <p>25 to use it, you're welcome to, but it doesn't -- it</p>	<p style="text-align: right;">Page 345</p> <p>1 and "Any talc use." Do you see that?</p> <p>2 A I do.</p> <p>3 Q Okay. All right. So as I appreciate</p> <p>4 your testimony, you had selected 25 population</p> <p>5 case controls, 7 hospital -- and 7 hospital case</p> <p>6 controls, correct?</p> <p>7 MS. BROWN: Objection.</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Do I have the numbers right?</p> <p>10 A I wasn't listening. I'm sorry.</p> <p>11 MS. BROWN: Look at the realtime. I</p> <p>12 just think you misspoke. You said seven hospitals</p> <p>13 twice. Is that what you meant?</p> <p>14 BY MS. PARFITT:</p> <p>15 Q As I appreciate your testimony, you</p> <p>16 selected -- no, this is populate -- 25 population</p> <p>17 case controls and 7 hospital case controls. I</p> <p>18 said it twice. Correct?</p> <p>19 A That's correct.</p> <p>20 Q Okay. And that formed the basis for</p> <p>21 your selection of case studies, correct?</p> <p>22 MS. BROWN: Objection to the form.</p> <p>23 THE WITNESS: Case-control studies.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Case-control studies.</p>

Gregory B. Diette, M.D.

Page 346	Page 348
<p>1 A Correct.</p> <p>2 Q Yes. Okay.</p> <p>3 Now, looking at the chart, which is 21,</p> <p>4 what is the point estimate -- wait.</p> <p>5 What I would like you to do, rather, I</p> <p>6 would like you to circle the point estimate for</p> <p>7 every study that exceeds -- that has a 1.0.</p> <p>8 MS. BROWN: Objection. Based on the</p> <p>9 document you created as 21?</p> <p>10 MS. PARFITT: Which is identical to the</p> <p>11 doctor's document, with the exception of I put two</p> <p>12 numbers for Hartge.</p> <p>13 MS. BROWN: You put two numbers for</p> <p>14 Moorman too.</p> <p>15 MS. PARFITT: Before and after 2014,</p> <p>16 correct?</p> <p>17 MS. BROWN: Nope, Moorman is 2009. You</p> <p>18 have -- you've broken out Moorman by race.</p> <p>19 MS. PARFITT: I did.</p> <p>20 MS. BROWN: So I mean, my point here is</p> <p>21 just if you wanted to use his report, he's happy</p> <p>22 to answer your questions, but --</p> <p>23 MS. PARFITT: He did it -- but he did it</p> <p>24 too.</p> <p>25 MS. BROWN: Okay. That's fine.</p>	<p>1 to be hard for me to read it off of your figure</p> <p>2 because I don't know, like -- like, the Harlow and</p> <p>3 Weiss one -- what is wrong with that one? Or is</p> <p>4 it --</p> <p>5 MS. BROWN: That looks wrong, doesn't</p> <p>6 it?</p> <p>7 THE WITNESS: No, it's Harlow and Weiss</p> <p>8 versus Harlow.</p> <p>9 So what am I circling? I'm circling</p> <p>10 the -- the -- on the forest plot?</p> <p>11 BY MS. PARFITT:</p> <p>12 Q On the forest plot, if you would be kind</p> <p>13 enough to circle every relative risk where the</p> <p>14 point estimate was 1.0 or above.</p> <p>15 A Oh, I did it wrong.</p> <p>16 Q That's all right.</p> <p>17 A Sorry. I'm circling the ones that</p> <p>18 are -- do you have another -- another copy of</p> <p>19 this?</p> <p>20 MS. MILLER: You can have mine.</p> <p>21 MR. LOCKE: I didn't --</p> <p>22 MS. PARFITT: I'm sorry. I'm sorry,</p> <p>23 Tom?</p> <p>24 MR. LOCKE: I just couldn't hear -- you</p> <p>25 trailed off at the end.</p>
Page 347	Page 349
<p>1 MS. PARFITT: It's on his chart.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q I didn't do anything -- the only</p> <p>4 modification I made to your chart, Doctor, is</p> <p>5 Hartge, and there I kept your 0.70 and added the</p> <p>6 genital 2.5.</p> <p>7 And what I'd like you to do is circle in</p> <p>8 that document every point estimate or odds ratio</p> <p>9 that is 1.0 or above.</p> <p>10 A 1.0 or higher?</p> <p>11 Q That's right.</p> <p>12 MS. BROWN: Objection to the exercise.</p> <p>13 And, Doctor, if you need the articles,</p> <p>14 we'll give them to you.</p> <p>15 THE WITNESS: So just as an example, if</p> <p>16 we look at Jordan 2007, which has an odds ratio of</p> <p>17 1.00 --</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Mm-hmm.</p> <p>20 A -- you find that one that would be</p> <p>21 interesting for me to circle.</p> <p>22 Q If it has a 1.0, I'd like you to circle</p> <p>23 it.</p> <p>24 A Sure.</p> <p>25 So in terms of your -- like, it's going</p>	<p>1 MS. PARFITT: Sure.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q You have -- and maybe I can shorten this</p> <p>4 for you, how about that, in the interest of time.</p> <p>5 A Your call.</p> <p>6 Q We have -- thank you. I appreciate</p> <p>7 that.</p> <p>8 We've got about 32 studies here. How</p> <p>9 many of those studies reflect an odds ratio</p> <p>10 greater than 1.0?</p> <p>11 MS. BROWN: For a relative risk?</p> <p>12 MS. PARFITT: Correct.</p> <p>13 THE WITNESS: I don't know what to do</p> <p>14 with Moorman, because it's one study, right. Two</p> <p>15 different odds ratios.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Mm-hmm.</p> <p>18 A But it looks like above the dotted line,</p> <p>19 it's -- there's 24 studies, I guess, and then down</p> <p>20 below it, there's -- one, two, three, four,</p> <p>21 five -- there's 5 that are above 1.0, and you said</p> <p>22 above 1.0 this time, before you said --</p> <p>23 Q Above -- I did, above 1.0.</p> <p>24 A Because the including an odds ratio of</p> <p>25 1.00 is evidence of something above 1.0 would</p>

88 (Pages 346 to 349)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 350</p> <p>1 be --</p> <p>2 Q Right. So we're doing above 1.0.</p> <p>3 A Okay.</p> <p>4 Q You pointed that out, and you're right.</p> <p>5 A Yeah. So have I done it? There's one,</p> <p>6 two, three, four -- well, I guess Hartge is --</p> <p>7 one, two, three, four, five --</p> <p>8 Q Sure.</p> <p>9 A -- there's five down below the dotted</p> <p>10 line, and there were --</p> <p>11 Q Okay. And if you can just identify</p> <p>12 those where the point estimate does not exceed --</p> <p>13 it's not above 1.0.</p> <p>14 MS. BROWN: Counsel, can you represent,</p> <p>15 on the record, what this second up from the bottom</p> <p>16 is?</p> <p>17 MS. PARFITT: Sure. Hartge and Stewart,</p> <p>18 '94.</p> <p>19 MS. BROWN: Underneath that.</p> <p>20 MS. PARFITT: Wong.</p> <p>21 MS. BROWN: No, above -- what is the</p> <p>22 entry above Wong?</p> <p>23 MS. PARFITT: Oh, in his table --</p> <p>24 THE WITNESS: Oh, that too.</p> <p>25 MS. PARFITT: In his table he had RR</p>	<p style="text-align: right;">Page 352</p> <p>1 that those studies have a relative risk in excess</p> <p>2 of 1.0 demonstrate a positive result?</p> <p>3 MS. BROWN: Objection to the form.</p> <p>4 THE WITNESS: So some -- some of those,</p> <p>5 yes, and some of those, no.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q All right. Would it be fair to say that</p> <p>8 they're certainly trending above the null; is that</p> <p>9 correct?</p> <p>10 MS. BROWN: Objection to the form.</p> <p>11 THE WITNESS: Not necessarily. I'm just</p> <p>12 trying to imagine like -- I think I understand why</p> <p>13 you're doing this -- but I'm just trying to</p> <p>14 imagine like standing in front of colleagues like</p> <p>15 with the Tzonou one and say, I've decided that a</p> <p>16 relative risk of 1.05 is a positive risk.</p> <p>17 I mean, you can only guess so close to</p> <p>18 1.0. I mean, 1.0 is basically null, right?</p> <p>19 There's no -- there's no effect. So you can hope</p> <p>20 for, but you're rarely going to get a 1.00. So if</p> <p>21 you get like a 1.01, 1.02, 1.03, those are</p> <p>22 basically 1.0.</p> <p>23 I mean, you can -- you can say -- try to</p> <p>24 make some point to somebody, Oh, it's a little bit</p> <p>25 above 1.0; therefore, it's a positive association.</p>
<p style="text-align: right;">Page 351</p> <p>1 0.03, RR 0.05. It was just extracted from his</p> <p>2 table.</p> <p>3 MS. BROWN: Oh, it's the second Hartge</p> <p>4 and Stewart.</p> <p>5 MS. PARFITT: Yeah.</p> <p>6 THE WITNESS: And so you want where just</p> <p>7 the midpoint is above the number 1.0?</p> <p>8 BY MS. PARFITT:</p> <p>9 Q Correct.</p> <p>10 A So Cramer, Harlow, Harlow, Chen, Cramer,</p> <p>11 Purdie, Chang, Cook, Green, Godard, Cramer, Ness,</p> <p>12 Mills, Cramer, Gates, Merritt; the two odds ratios</p> <p>13 for Moorman, Wu, Rosenblatt, Kurta, Kotsopoulos,</p> <p>14 Wu, Cramer, Schildkraut; and then one of the two</p> <p>15 Hartge's, Whittemore --</p> <p>16 Q And are you circling those, Doctor?</p> <p>17 A I'm not, no.</p> <p>18 Q Okay. If you could do that because</p> <p>19 we'll attach it as an exhibit. Sorry.</p> <p>20 A Should I just finish saying them --</p> <p>21 Q Sure.</p> <p>22 A -- and then go back and do it?</p> <p>23 So Rosenblatt, Tzonou, and that's it.</p> <p>24 So -- (circling studies.) Okay.</p> <p>25 Q Okay. What does the -- does the fact</p>	<p style="text-align: right;">Page 353</p> <p>1 But other than this setting, you're going to get</p> <p>2 laughed out of the room. I mean, this is -- this</p> <p>3 is a 1.05. So, you know, that's -- you call it</p> <p>4 what you want. I don't call that a positive</p> <p>5 finding.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Okay. Now, what I'd like you to do is</p> <p>8 look at the confidence intervals for each one of</p> <p>9 those studies, and circle where the confidence</p> <p>10 interval shows a relative risk of 1.2.</p> <p>11 MS. BROWN: Objection to the form of the</p> <p>12 question.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q And again, if you will just circle</p> <p>15 those.</p> <p>16 A I -- I think you'd be better off drawing</p> <p>17 a line, right. Because it -- I mean, this scale</p> <p>18 here isn't really -- like there's no vertical</p> <p>19 scale that's labeled here. Right. So you've got</p> <p>20 1.0, 1.1 and 1.2. I mean if you want, I think you</p> <p>21 ought to just take a ruler and run it up from 1.2.</p> <p>22 Q Why don't you just go ahead and identify</p> <p>23 them, if you will, and we can go ahead and do</p> <p>24 that. Let's see.</p> <p>25 A Well, like I can --</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 354</p> <p>1 Q My question is just simply this: Would</p> <p>2 you identify all studies where the confidence</p> <p>3 interval is 1.2 or higher?</p> <p>4 MS. BROWN: Objection to the form.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q And you can just circle them.</p> <p>7 A And it doesn't have to mean anything to</p> <p>8 me, right?</p> <p>9 Q Nope. Just circle anything where the</p> <p>10 confidence interval is above a 1.2.</p> <p>11 A So where the confidence interval</p> <p>12 includes 1.2?</p> <p>13 Q 1.2, correct.</p> <p>14 A Or where it's above 1.2?</p> <p>15 Q It's above 1.2.</p> <p>16 MS. BROWN: The entire interval?</p> <p>17 THE WITNESS: Well, so there's not many,</p> <p>18 right? So there's one --</p> <p>19 BY MS. PARFITT:</p> <p>20 Q You understand that it includes 1.2?</p> <p>21 A I heard -- oh, that's different,</p> <p>22 because there's only one where it's above 1.2.</p> <p>23 Q It includes the 1.2.</p> <p>24 A Or two that are above it.</p> <p>25 So the two that are above it, don't</p>	<p style="text-align: right;">Page 356</p> <p>1 was inconsistent.</p> <p>2 Q And that aspect --</p> <p>3 MS. BROWN: Are you looking at the</p> <p>4 report?</p> <p>5 THE WITNESS: Yeah.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q -- was with regard to population study</p> <p>8 versus hospital-based studies?</p> <p>9 A Well, I think I made a comment about</p> <p>10 both, right?</p> <p>11 Q And if I can summarize your testimony,</p> <p>12 but feel free to look, but your testimony from the</p> <p>13 report -- or your writings and your report suggest</p> <p>14 that the case-control studies are inconsistent,</p> <p>15 and you focus on the fact that the hospital-based</p> <p>16 controls were inconsistent with the population-</p> <p>17 based controls.</p> <p>18 A That's one -- one of the areas of</p> <p>19 inconsistency.</p> <p>20 Q Okay. And you base that opinion on the</p> <p>21 fact that there -- the hospital-based studies were</p> <p>22 not statistically significant, but the</p> <p>23 population-based studies were statistically</p> <p>24 significant; is that correct?</p> <p>25 MS. BROWN: Objection to the form.</p>
<p style="text-align: right;">Page 355</p> <p>1 include it, right, so we got to start over.</p> <p>2 Q Everywhere -- sure. You go ahead and do</p> <p>3 it. Everywhere where the confidence interval is</p> <p>4 above -- includes 1.2.</p> <p>5 A That's all right. I'm just going to put</p> <p>6 a little asterisk next to them, because I already</p> <p>7 made a mark --</p> <p>8 Q Sure, that's fine.</p> <p>9 A -- next to the ones that are above 1.2.</p> <p>10 Okay.</p> <p>11 Q Okay. Let's go ahead and just put this</p> <p>12 here. I appreciate that.</p> <p>13 Okay. Here we go. Let's see here.</p> <p>14 Okay. So let's just stay with that one</p> <p>15 here for a moment. Let me give you -- give you a</p> <p>16 blank one here for a moment. Is that all right?</p> <p>17 So you have something in front of you.</p> <p>18 A Sure.</p> <p>19 Q Okay. All right.</p> <p>20 Dr. Diette, looking at the chart that we</p> <p>21 just talked about, you have described in your</p> <p>22 report that the case-control studies are</p> <p>23 inconsistent. Is that your testimony?</p> <p>24 A I think we should look literally at what</p> <p>25 I wrote, because I talked about one aspect that</p>	<p style="text-align: right;">Page 357</p> <p>1 THE WITNESS: That's one piece of</p> <p>2 evidence, right. So one piece of evidence is that</p> <p>3 the hospital-based ones, none of them were</p> <p>4 statistically significant, and some of the</p> <p>5 population-based ones were.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q All right. And because you had some of</p> <p>8 the population-based studies, you found</p> <p>9 inconsistent because the confidence intervals were</p> <p>10 not -- were such that they were not statistically</p> <p>11 significant; is that correct?</p> <p>12 A That's a --</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 THE WITNESS: And as before, that's a</p> <p>15 piece of -- a piece of the information here.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Okay. I've reviewed your report. Other</p> <p>18 than the distinction between the statistical</p> <p>19 significance of studies versus the nonstatistical</p> <p>20 significance of studies, how else did you discern</p> <p>21 that they were different and not consistent?</p> <p>22 A Well, I have a section on consistency.</p> <p>23 So it -- there's other things about these studies</p> <p>24 that are inconsistent.</p> <p>25 So, for example, the -- the</p>

90 (Pages 354 to 357)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 358</p> <p>1 dose-response relationships are all over the</p> <p>2 place. So that I found to be an inconsistency.</p> <p>3 The findings about certain kinds of ovarian</p> <p>4 cancers, some showed a particular cell type and</p> <p>5 some -- some didn't.</p> <p>6 Let me just --</p> <p>7 Q Let me ask you --</p> <p>8 MS. BROWN: Wait, I don't think he's</p> <p>9 finished.</p> <p>10 MS. PARFITT: No. Let's just make sure.</p> <p>11 THE WITNESS: I think we've said it, but</p> <p>12 I want to make it clear, right, because we were --</p> <p>13 we were really just sort of focused very -- very</p> <p>14 much on population-based and hospital-based case</p> <p>15 controls.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q That's right.</p> <p>18 A But I think the fact that there is</p> <p>19 basically, you know, not a signal from the cohort</p> <p>20 studies is an inconsistency with studies of</p> <p>21 another design, so another form of inconsistency.</p> <p>22 I think that -- and what I've tried to</p> <p>23 say here, right, because I think -- I think some</p> <p>24 of these Hill criteria, it's hard to -- hard to</p> <p>25 keep every -- every comment you want under one</p>	<p style="text-align: right;">Page 360</p> <p>1 like that. So I'm -- that's more inconsistency.</p> <p>2 Q Okay. Dr. Diette, what I'm trying to</p> <p>3 get at here is, the underbelly, I guess, of your</p> <p>4 opinions seem to be from your report that cohort</p> <p>5 studies are inconsistent with the case-control</p> <p>6 studies, which they themselves are inconsistent</p> <p>7 because population-based studies and</p> <p>8 hospital-based studies, some were statistically</p> <p>9 significant and some were not. Correct?</p> <p>10 A Exactly, yes.</p> <p>11 Q Okay. And that's really the -- the guts</p> <p>12 of your report, correct?</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 THE WITNESS: I -- no. I mean, those</p> <p>15 are two very important points, but I'd say there's</p> <p>16 a heck of a lot more than that in the report.</p> <p>17 BY MS. PARFITT:</p> <p>18 Q Okay. Did you go through -- let's --</p> <p>19 let's talk a little bit about that.</p> <p>20 You described these relative risks of</p> <p>21 the case-control studies as small, weak -- small</p> <p>22 and weak, correct?</p> <p>23 A Correct.</p> <p>24 Q Okay. What type of -- those words</p> <p>25 "small and weak," are those scientific words?</p>
<p style="text-align: right;">Page 359</p> <p>1 particular heading, and so I've tried to get at</p> <p>2 this issue here too that if it were consistent</p> <p>3 that talc caused or was associated with ovarian</p> <p>4 cancer, I would expect to see it under a variety</p> <p>5 of circumstances, not just perineal dusting. And</p> <p>6 so one of the inconsistencies is that, you know,</p> <p>7 diaphragms and condoms, that we don't see that</p> <p>8 signal. So I'm just saying that that's an</p> <p>9 inconsistency. It's the opposite of consistency.</p> <p>10 And I guess too -- I mean just while</p> <p>11 we're even still on the -- on the types of</p> <p>12 studies, I mean the Taher study that, I guess, you</p> <p>13 know, even though it's not published yet, I mean</p> <p>14 they've got a summary risk for the hospital-based</p> <p>15 studies which is less than 1.0. Right. So now</p> <p>16 it's not even just like -- if -- I don't know</p> <p>17 whether we should like the Taher study or not, but</p> <p>18 it's out there, right. And so now we've got --</p> <p>19 Q It's out there. It's a piece of the</p> <p>20 evidence.</p> <p>21 A Yeah, it's something that's out there,</p> <p>22 so now we've got something that's unpublished from</p> <p>23 2018 that's got not even a positive risk. I mean,</p> <p>24 this -- this exercise of going to look and see</p> <p>25 what's over 1.0, there's a 0.94 or 6 or something</p>	<p style="text-align: right;">Page 361</p> <p>1 A So they're words that my colleagues and</p> <p>2 I use. I mean, it's a word that Dr. Rothman used</p> <p>3 when he did his analysis in 2000 and called the</p> <p>4 summary odds ratio or the risk -- risk of 1.3, he</p> <p>5 called it weak. I'm not sure whether he's citing</p> <p>6 a particular definition, but, you know, it --</p> <p>7 it's -- there's probably reasons, just like where</p> <p>8 you talk about a p-value of 0.05 not being the</p> <p>9 absolute line. I think it's why people have</p> <p>10 resisted trying to say that it has to be above an</p> <p>11 exact specific number.</p> <p>12 But I think we can all recognize risks</p> <p>13 that are large. You know, we know that a risk of</p> <p>14 10 is a large risk. We know that 20 is a large</p> <p>15 risk. We know that a relative risk of 1.01, it's</p> <p>16 got to be tiny, right, because it can't be any</p> <p>17 smaller than that on that particular scale.</p> <p>18 So somewhere in there we have to use</p> <p>19 some judgment, and I think if you got a 1.2 or</p> <p>20 1.3, I don't know who -- I don't know who thinks</p> <p>21 that's strong. It doesn't make any sense.</p> <p>22 Q Do you agree that having a weak</p> <p>23 association does not rule out a causal connection?</p> <p>24 MS. BROWN: Objection to the form.</p> <p>25 THE WITNESS: Wait a minute, say it</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 362</p> <p>1 again because I think --</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Having a weak association would not rule</p> <p>4 out a causal association.</p> <p>5 A That's correct.</p> <p>6 Q All right. Would you also agree that</p> <p>7 while the strength of an association is a</p> <p>8 guideline for drawing an inference of causation,</p> <p>9 there is no specified threshold required?</p> <p>10 MS. BROWN: Objection to the form.</p> <p>11 THE WITNESS: I don't think there's a</p> <p>12 specified threshold. I think it's a gradient,</p> <p>13 right, that you have to use as you're applying</p> <p>14 your judgment about all of the evidence. And that</p> <p>15 when you have a very small risk, you should be</p> <p>16 more concerned about the distorting effects of</p> <p>17 other factors, and if you have a larger risk, you</p> <p>18 can be less worried about those distorting</p> <p>19 factors.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q But you will agree with me under the</p> <p>22 Bradford Hill factors, strong association or weak</p> <p>23 association, neither are necessary for finding</p> <p>24 causality, correct?</p> <p>25 MS. BROWN: Objection to the form.</p>	<p style="text-align: right;">Page 364</p> <p>1 Q Secondhand smoke and lung cancer.</p> <p>2 MR. LOCKE: Objection.</p> <p>3 THE WITNESS: I think really the Surgeon</p> <p>4 General has put it at -- it's either about 1.7 or</p> <p>5 1.9, somewhere in there.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Okay. Let me show you -- I'm sorry.</p> <p>8 1.7 or 1.9.</p> <p>9 Let me show you a study by Kim. And</p> <p>10 it's entitled "Exposure to Secondhand Smoke and</p> <p>11 the Risk of Cancer in Never Smokers." And I'll</p> <p>12 represent that it's in the International Journal</p> <p>13 of Environment, 2018. And this would be a</p> <p>14 meta-analysis by Dr. Kim.</p> <p>15 A Do you know, is it something I cited or</p> <p>16 is this new -- new to me or --</p> <p>17 Q I did not see it in your --</p> <p>18 A Okay. Thank you.</p> <p>19 Q -- list of references.</p> <p>20 In fact, good question. None of the 167</p> <p>21 articles that were in your curriculum vitae did I</p> <p>22 see that you cited in support for your expert</p> <p>23 report; is that correct?</p> <p>24 A That would -- I'm sure that's correct.</p> <p>25 Q Okay. Okay. Do you see that?</p>
<p style="text-align: right;">Page 363</p> <p>1 THE WITNESS: So there isn't a single</p> <p>2 one of his considerations that all by itself is</p> <p>3 completely necessary, right. It's a -- it's a</p> <p>4 method to pull together a variety of, you know,</p> <p>5 information about the studies. But he -- he</p> <p>6 certainly does give us some guidance about what</p> <p>7 "strong" and "not strong" might mean and the</p> <p>8 implications of that.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q But we can agree sitting here today that</p> <p>11 those general terms, "weak," "small," do not</p> <p>12 dictate whether or not there is causality.</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 THE WITNESS: They don't dictate it.</p> <p>15 They inform it.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q You mentioned that the -- I want to come</p> <p>18 back to that one in a second.</p> <p>19 Now, you, yourself, have actually done</p> <p>20 secondhand smoke studies, correct?</p> <p>21 A I've done studies that include</p> <p>22 secondhand smoke as a measure.</p> <p>23 Q Okay. What is your understanding of the</p> <p>24 relative risks for secondhand smoke?</p> <p>25 A For what?</p>	<p style="text-align: right;">Page 365</p> <p>1 A I do, yes.</p> <p>2 Q Okay. And if you look in the abstract,</p> <p>3 do you see where the authors determined that the</p> <p>4 relative risks for passive smoke exposure and lung</p> <p>5 cancer in never users was a relative risk rather</p> <p>6 than of 1.2.</p> <p>7 Do you see that? Take a moment.</p> <p>8 A Yeah.</p> <p>9 Q We'll put it on the ELMO.</p> <p>10 A So we're looking at the abstract?</p> <p>11 Q We are, mm-hmm.</p> <p>12 A And saying -- so odds ratio involving</p> <p>13 never smokers with significant exposure to</p> <p>14 secondhand compared to never smokers was 1.163.</p> <p>15 Q Okay. Do you see where it says:</p> <p>16 "Passive smoke exposure and lung cancer in never</p> <p>17 users was a relative risk of 1.245"?</p> <p>18 And we can go ahead and circle that.</p> <p>19 A That's for females?</p> <p>20 Q Yes.</p> <p>21 A For females, yeah, 1.245.</p> <p>22 Q Okay. So we had a 1.245 for females,</p> <p>23 and, I'm sorry, you said a 1.16 for secondhand all</p> <p>24 comers, right?</p> <p>25 A Exactly right.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 366</p> <p>1 Q Okay. Let me show you as well the Lv</p> <p>2 study, and it was a 2015 study. "Risk of</p> <p>3 All-Cause Mortality Associated With Secondhand</p> <p>4 Smoke."</p> <p>5 A Do I have that?</p> <p>6 Q I'm getting that for you. Hold on one</p> <p>7 second.</p> <p>8 A Oh, I'm sorry. I thought I --</p> <p>9 Q No, no worries.</p> <p>10 A I thought I missed it.</p> <p>11 (Diette Exhibit No. 23 was marked</p> <p>12 for identification.)</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Do you have that in front of you?</p> <p>15 A Yes. So this is by Lv?</p> <p>16 Q That's right.</p> <p>17 A The last name, yeah.</p> <p>18 Q And now again, looking at the abstract</p> <p>19 section, does it report the relative risk for</p> <p>20 never smokers exposed to secondhand smoke versus</p> <p>21 unexposed?</p> <p>22 A So the pooled relative risk for never</p> <p>23 smokers compared to those -- is that -- so that</p> <p>24 first sentence of the results --</p> <p>25 Q That's right --</p>	<p style="text-align: right;">Page 368</p> <p>1 associations that are implementing those types of</p> <p>2 programs to reduce secondhand smoke for fear of</p> <p>3 lung cancer have accepted this type of data, 1.1,</p> <p>4 1.2, for purposes of making those policy</p> <p>5 decisions?</p> <p>6 A So I don't know --</p> <p>7 MR. LOCKE: Objection.</p> <p>8 THE WITNESS: Oops, sorry.</p> <p>9 Like, I don't -- I don't know what</p> <p>10 inputs they -- they used, and I don't -- I'm not</p> <p>11 saying they wouldn't, but I don't know whether</p> <p>12 they would use these risks to drive that or not.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Okay. You would agree with me, though,</p> <p>15 that the risk of 1.1 and 1.2 are very -- are</p> <p>16 actually less than the relative risks that we've</p> <p>17 seen with talcum powder products and ovarian</p> <p>18 cancer, correct?</p> <p>19 MS. BROWN: Objection to the form.</p> <p>20 THE WITNESS: So it's less than the</p> <p>21 pooled odds ratio from the case-control studies in</p> <p>22 the meta-analyses.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Okay. Now, you yourself have done</p> <p>25 studies on indoor particulate matter, correct?</p>
<p style="text-align: right;">Page 367</p> <p>1 A -- 1.18?</p> <p>2 Q Correct. And they then report in the</p> <p>3 all-cause mortality and RR was 1.23 for</p> <p>4 cardiovascular diseases. Do you see that?</p> <p>5 A Yeah, although -- exactly right, yep.</p> <p>6 Q Okay. Now, there have been -- and this</p> <p>7 is work that you do as well, correct?</p> <p>8 MS. BROWN: Objection to the form.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q You do research work on secondhand</p> <p>11 smoke?</p> <p>12 A I have done, yeah, and still do.</p> <p>13 Q Okay. And are you aware that in the</p> <p>14 United States and in other countries, there have</p> <p>15 been health programs implemented to reduce</p> <p>16 secondhand smoke based upon relative risks, like</p> <p>17 you've just seen, 1.1, 0.8, 1.2?</p> <p>18 MR. LOCKE: Objection.</p> <p>19 THE WITNESS: I mean, I don't know if</p> <p>20 the programs were based on these studies, and</p> <p>21 there certainly have been higher relative risks</p> <p>22 before. But I -- but I agree that there are</p> <p>23 programs to reduce secondhand smoke exposure.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Okay. And would you agree today that</p>	<p style="text-align: right;">Page 369</p> <p>1 A Correct.</p> <p>2 Q Okay. In particular, you published a</p> <p>3 study with McCormack and Diette on common</p> <p>4 household exposures?</p> <p>5 A I've published a bunch with her, so I</p> <p>6 don't know which -- which particular one that is.</p> <p>7 Q All right. It's Common -- it's Common</p> <p>8 Household Products, 2008." McCormack is the lead</p> <p>9 article -- author.</p> <p>10 A What journal?</p> <p>11 Q It is in the Environmental Res,</p> <p>12 Environmental --</p> <p>13 A Environmental research.</p> <p>14 Q -- Research. And it's dated February</p> <p>15 2008. And take a minute to --</p> <p>16 (Diette Exhibit No. 24 was marked</p> <p>17 for identification.)</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Do you have that in front of you?</p> <p>20 A I do.</p> <p>21 Q Okay. Now, if you look at the first</p> <p>22 page under the abstract, about the third line</p> <p>23 down -- excuse me, fourth line down, it says:</p> <p>24 "There is a public health imperative to</p> <p>25 characterize indoor source as being less</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 370</p> <p>1 extensively characterized" -- excuse me. I'm</p> <p>2 sorry.</p> <p>3 "There is a public health imperative to</p> <p>4 characterize indoor sources of PM" -- I assume</p> <p>5 that's particulate matter?</p> <p>6 A Correct.</p> <p>7 Q -- "with this vulnerable population to</p> <p>8 enable effective intervention strategies."</p> <p>9 Did I read that correctly?</p> <p>10 A You did.</p> <p>11 Q Okay. You were the lead -- one of the</p> <p>12 lead authors in that study?</p> <p>13 A Yeah, I was, by position, the senior</p> <p>14 author, but I was the head of the -- the study</p> <p>15 that produced this paper.</p> <p>16 Q All right. And what is -- and do you</p> <p>17 have an opinion with regard to what the relative</p> <p>18 risks are for indoor ambient particulate matter?</p> <p>19 A For what?</p> <p>20 Q For --</p> <p>21 A You mean qualitative, like what</p> <p>22 illnesses they cause or --</p> <p>23 Q Yes, with regard -- I believe you</p> <p>24 studied a bit of asthma, so I believe it would be</p> <p>25 the relative risk of indoor particulates and</p>	<p style="text-align: right;">Page 372</p> <p>1 MS. BROWN: Objection to the form. You</p> <p>2 need the disease to link the --</p> <p>3 MS. PARFITT: Lung. Lung.</p> <p>4 MS. BROWN: You mean cancer? Objection</p> <p>5 to the form.</p> <p>6 THE WITNESS: Anyway, I can't answer it.</p> <p>7 You need more in the sentence or the question in</p> <p>8 order for me to be able to answer it.</p> <p>9 BY MS. PARFITT:</p> <p>10 Q Okay. Are there any -- fair enough.</p> <p>11 Are there any reported relative risks</p> <p>12 between indoor particulate matter and lung</p> <p>13 disease?</p> <p>14 MS. BROWN: Objection to the form.</p> <p>15 THE WITNESS: I'd want to be super</p> <p>16 careful about what we're saying is lung disease,</p> <p>17 because some people might think that that means</p> <p>18 the risk of developing a particular lung disease,</p> <p>19 and others might mean the worsening of an existing</p> <p>20 disease or a lung function abnormality.</p> <p>21 BY MS. PARFITT:</p> <p>22 Q Okay. Do you know what the relative</p> <p>23 risk is between indoor particulate matter and</p> <p>24 asthma?</p> <p>25 A The risk of developing asthma?</p>
<p style="text-align: right;">Page 371</p> <p>1 asthma?</p> <p>2 A Well, there's not one single way to</p> <p>3 answer that, right. So this -- this paper doesn't</p> <p>4 look like the one that's actually quantified it,</p> <p>5 right. We have other ones that look at the</p> <p>6 increase in, say, symptoms, for example, or</p> <p>7 exacerbations per very small increment in</p> <p>8 particulate matter.</p> <p>9 So like, I think if you -- if you're</p> <p>10 looking at our studies, you're not going to find a</p> <p>11 relative risk that's, like -- that's analogous to</p> <p>12 these where this is the relative risk of an</p> <p>13 outcome for secondhand smoke, yes/no. Ours are</p> <p>14 reported not by that but by little tiny increments</p> <p>15 or decrements of -- of particle concentrations.</p> <p>16 Q Do you know what the relative risk is</p> <p>17 for indoor ambient air?</p> <p>18 A That's --</p> <p>19 MS. BROWN: Objection to the form.</p> <p>20 THE WITNESS: That's not a full</p> <p>21 question.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Do you -- is there a relative risk for</p> <p>24 exposure to the lungs in indoor particulate</p> <p>25 matter?</p>	<p style="text-align: right;">Page 373</p> <p>1 Q Correct.</p> <p>2 A It's not --</p> <p>3 MS. BROWN: Objection to the form.</p> <p>4 THE WITNESS: Sorry. It's not known.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q It's not known.</p> <p>7 A Not known.</p> <p>8 Q It's not been published.</p> <p>9 A Well, I can't say there's not a single</p> <p>10 paper out there, but at this point the -- a</p> <p>11 summary of the evidence is that we can't say for</p> <p>12 sure that it's -- that it causes asthma.</p> <p>13 Q Have you reviewed in any of the</p> <p>14 literature published data with regard to airborne</p> <p>15 particles -- indoor airborne particles and asthma</p> <p>16 as to what the relative risk may be?</p> <p>17 MS. BROWN: Objection to form.</p> <p>18 THE WITNESS: Relative risk of?</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Relative risk of asthma from exposure to</p> <p>21 indoor air particulate.</p> <p>22 MS. BROWN: Objection to the form.</p> <p>23 THE WITNESS: So I -- I've read a ton of</p> <p>24 stuff about it. I mean if you've got a particular</p> <p>25 article, I'm happy to read it and interpret it.</p>

Gregory B. Diette, M.D.

Page 374	Page 376
<p>1 But as of this point, I think we -- should I</p> <p>2 explain or just --</p> <p>3 BY MS. PARFITT:</p> <p>4 Q No, I -- all I really want to know in</p> <p>5 the interest of time is whether or not you have</p> <p>6 reviewed any of the scientific literature data</p> <p>7 that reports what the relative risk is for indoor</p> <p>8 particulate matter and the risk of getting asthma?</p> <p>9 MS. BROWN: Objection to the form.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q And if you haven't, that's fine.</p> <p>12 A Oh, my gosh, no, it's not that. I have.</p> <p>13 I just don't think that you can answer that</p> <p>14 question. I'm not saying there's not some study</p> <p>15 out there that may estimate a risk for that, but</p> <p>16 it isn't established. Like, at this point, we</p> <p>17 cannot say in 2019 that indoor particulate matter</p> <p>18 causes asthma.</p> <p>19 And -- and you have to say more to the</p> <p>20 sentence. So let's just talk about like adults</p> <p>21 living in the city. We can't say that. You</p> <p>22 know -- you know, there's -- there's studies that</p> <p>23 have looked at the relative risk of indoor</p> <p>24 cooking, which is predominantly particulate</p> <p>25 matter, in developing countries, but even the</p>	<p>1 meter cubed. It may be from a particular source,</p> <p>2 like traffic-related pollution or not.</p> <p>3 I mean there's more to it. There's not</p> <p>4 just like some summary that -- that I can -- I can</p> <p>5 make. Maybe you can find somebody that can just</p> <p>6 say particulate matter has this risk of causing</p> <p>7 asthma. I haven't seen it.</p> <p>8 But it's not there aren't like a whole</p> <p>9 bunch of studies looking at the relationship</p> <p>10 between indoor and outdoor particulate matter and</p> <p>11 lung disease as both, you know, developing newly</p> <p>12 and worsening the existing ones.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Right. Does secondhand smoke cause lung</p> <p>15 cancer?</p> <p>16 MS. BROWN: Objection to the form.</p> <p>17 THE WITNESS: It seems -- it seems that</p> <p>18 that -- that has been established.</p> <p>19 (Counsel conferring.)</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Okay. Let's talk a little bit --</p> <p>22 THE WITNESS: We're just doing a time</p> <p>23 check. I'm just trying -- do you know roughly how</p> <p>24 much we --</p> <p>25 THE VIDEOGRAPHER: Five hours, 34</p>
Page 375	Page 377
<p>1 asthma evidence is not fully developed.</p> <p>2 So it's just -- it's one of those things</p> <p>3 where you may find a paper that has an estimate,</p> <p>4 but it hasn't been fully established yet.</p> <p>5 Q All right. Do you -- I understand it's</p> <p>6 not fully established, but are there reported</p> <p>7 relative risks from the scientific literature?</p> <p>8 MS. BROWN: Objection.</p> <p>9 THE WITNESS: I'm sure there are.</p> <p>10 MS. BROWN: Objection --</p> <p>11 THE WITNESS: I'm sure there are, but --</p> <p>12 BY MS. PARFITT:</p> <p>13 Q There are. Do you know what they are?</p> <p>14 MS. BROWN: Objection to the form.</p> <p>15 THE WITNESS: Oh, my gosh.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q If you know. If -- like, do you know</p> <p>18 there is a range of relative risks between</p> <p>19 exposure to indoor particulate matter and asthma?</p> <p>20 MS. BROWN: Objection to the form of the</p> <p>21 question.</p> <p>22 THE WITNESS: I've got to see what</p> <p>23 you're talking about, because I think that when</p> <p>24 you ask it that way, there may be some estimate</p> <p>25 based on a particular number of micrograms per</p>	<p>1 minutes.</p> <p>2 THE WITNESS: So a little under an hour</p> <p>3 and a half? Did you guys want to do a --</p> <p>4 MS. PARFITT: A quick break here? Sure.</p> <p>5 THE WITNESS: -- or a break here or</p> <p>6 wait?</p> <p>7 MS. PARFITT: No, that's fine. We can</p> <p>8 take a quick one now. That's fine.</p> <p>9 THE VIDEOGRAPHER: The time is 3:50 p.m.</p> <p>10 We're going off the record.</p> <p>11 (Recess.)</p> <p>12 THE VIDEOGRAPHER: The time is 4:10 p.m.</p> <p>13 We're back on the record.</p> <p>14 We're on the record, by the way.</p> <p>15 (A discussion was held off the record.)</p> <p>16 (Diette Exhibit Nos. 25 and 26</p> <p>17 were marked for identification.)</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Are you ready, Dr. Diette?</p> <p>20 A I am. Thank you.</p> <p>21 Q Very good.</p> <p>22 THE VIDEOGRAPHER: Microphone, Counsel.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Dr. Diette, I -- I asked you a little</p> <p>25 bit earlier about the relative risk for secondhand</p>

95 (Pages 374 to 377)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 378</p> <p>1 smoke and -- and lung cancer. 2 And what I would like you to do is -- 3 and I apologize, I don't have copies of this -- so 4 I'm showing you what is the report of the Surgeon 5 General, I believe it was back in 2006, "The 6 Health Consequences of Involuntary Exposure to 7 Tobacco Smoke, A Report of the Surgeon General." 8 Have you read that in the past? 9 A So definitely not every word, but I've 10 read big chunks of it. 11 Q Okay. I figured with your work you may 12 have. 13 A Yeah. 14 Q All right. Let me direct your attention 15 to -- 16 MS. PARFITT: And I apologize to all, so 17 you have to look on the camera -- on the screen. 18 MS. BROWN: Okay. So just for the 19 record, we don't have copies of this, and so I 20 will object to the fact that we have no context or 21 ability to look at the document ourselves. 22 MS. PARFITT: All right. 23 BY MS. PARFITT: 24 Q And again, Doctor, you've reviewed this 25 report, correct, in the past?</p>	<p style="text-align: right;">Page 380</p> <p>1 Q That's all right. 2 -- is related to secondhand smoke and 3 lung cancer? 4 MS. BROWN: Objection to the form. 5 THE WITNESS: It looks like it there. I 6 remember there's other numbers in there as well, 7 but I mean, I remember it being 1-point something 8 and -- 9 BY MS. PARFITT: 10 Q Does that refresh my memory? 11 MS. BROWN: Well, let him finish, 12 please. 13 THE WITNESS: I think there's somewhere 14 else in there where there's other estimates, but 15 still not like -- not sky high. Still less than 16 2.0. 17 BY MS. PARFITT: 18 Q But you don't disagree with the Surgeon 19 General's conclusion that the pooled evidence 20 indicates a 20 to 30 percent increase in the risk 21 of lung cancer from secondhand smoke exposure 22 associated with living with a smoker, correct? 23 MR. LOCKE: Objection. 24 MS. BROWN: Objection. He doesn't have 25 the document, he can't review it.</p>
<p style="text-align: right;">Page 379</p> <p>1 A In the past, and I've read parts of it, 2 but as you know, I mean it's a humongous -- 3 Q It is big. 4 A -- document, and so some parts 5 weren't -- weren't for me. 6 Q All right. I want to focus your 7 attention on the conclusions of the Surgeon 8 General's report. 9 And 1: "The evidence is sufficient to 10 infer a causal relationship between secondhand 11 smoke exposure and lung cancer among lifetime 12 nonsmokers. This conclusion extends to all 13 secondhand smoke exposure, regardless of location. 14 "2. The pooled evidence that indicates" 15 -- sorry -- "the pooled evidence indicates a 20 to 16 30 percent" -- that would be a 1.2 or 1.3 relative 17 risk -- "increase in the risk of lung cancer from 18 secondhand smoke exposure associated with a 19 smoker." 20 Did I read that correctly? 21 A You did. 22 Q And is that what the -- are those the 23 numbers, 1.2 and 1.3, the relative risks that the 24 Surgeon General has concluded is -- 25 A Um -- I'm sorry.</p>	<p style="text-align: right;">Page 381</p> <p>1 BY MS. PARFITT: 2 Q Are you disputing that conclusion? 3 MS. BROWN: Objection. He has no basis 4 to do it, he doesn't have the document. 5 BY MS. PARFITT: 6 Q Are you disputing that, Doctor? 7 A I would -- 8 MR. LOCKE: Objection. 9 THE WITNESS: I would say it fits with 10 what I understood to be true at the time that that 11 was published. 12 BY MS. PARFITT: 13 Q Fair enough. Thank you. I appreciate 14 that. 15 Dr. Diette, is it fair that -- to say 16 that we don't have, and you've not reviewed, any 17 Johnson -- Johnson & Johnson specific epidemiology 18 with regard to a study of just Johnson & Johnson 19 Baby Powder? 20 MS. BROWN: Objection to the form. 21 THE WITNESS: That is correct. 22 BY MS. PARFITT: 23 Q Okay. And so what we rely on, and what 24 you've relied on, rather, is data and 25 epidemiological science on all comers, all brands,</p>

Gregory B. Diette, M.D.

Page 382	Page 384
<p>1 correct?</p> <p>2 MS. BROWN: Objection to the form.</p> <p>3 MR. LOCKE: Objection.</p> <p>4 THE WITNESS: I -- I wouldn't</p> <p>5 characterize it exactly that way. I mean I would</p> <p>6 say that I can't really sort between different</p> <p>7 brands based on the epidemiologic literature, but</p> <p>8 whatever all brands is, I don't -- you know, I</p> <p>9 don't know what that represents.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q And would it be fair then if one product</p> <p>12 that contained -- one product, talcum powder</p> <p>13 product contained asbestos, and another did not,</p> <p>14 that would result in a conclusion that would draw</p> <p>15 it towards the null? Is that fair?</p> <p>16 MS. BROWN: Objection to the question.</p> <p>17 THE WITNESS: I don't understand that.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q Okay.</p> <p>20 A I mean I understand the idea of drawing</p> <p>21 something to the null. I just don't understand --</p> <p>22 Q Sure.</p> <p>23 A -- what preceded that.</p> <p>24 Q If you have a product like Johnson &</p> <p>25 Johnson, and you -- and it has a carcinogen in it,</p>	<p>1 BY MS. PARFITT:</p> <p>2 Q Okay. When you say it doesn't change</p> <p>3 the totality of the evidence that we have</p> <p>4 available for us, isn't it true that the presence</p> <p>5 of a carcinogen, like asbestos in talcum powder</p> <p>6 products, supports the biological -- biologically</p> <p>7 plausible mechanism for association between talcum</p> <p>8 powder products and ovarian cancer?</p> <p>9 MS. BROWN: Objection to the form of the</p> <p>10 question.</p> <p>11 THE WITNESS: I -- I'd say no. And for</p> <p>12 reasons, if you want them, or just leave it at no.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q Well, you've testified that asbestos is</p> <p>15 a carcinogen. Correct?</p> <p>16 A Correct.</p> <p>17 Q All right. And the fact that asbestos</p> <p>18 might be in the talcum powder product does not</p> <p>19 impact your opinions with regard to the increased</p> <p>20 biologically plausible mechanism for talc to cause</p> <p>21 ovarian cancer.</p> <p>22 MS. BROWN: Objection to the form. Are</p> <p>23 you talking about a Johnson & Johnson product?</p> <p>24 MS. PARFITT: Just generally.</p> <p>25 MS. BROWN: Objection to the form.</p>
Page 383	Page 385
<p>1 and you lump it together with other products that</p> <p>2 are not infected or contaminated with asbestos,</p> <p>3 what does that do to the overall relative risk --</p> <p>4 A Oh.</p> <p>5 Q -- when studying that product?</p> <p>6 MS. BROWN: Objection to the incomplete</p> <p>7 hypothetical.</p> <p>8 THE WITNESS: So concept and reality,</p> <p>9 right. So the concept would be, if you knew that</p> <p>10 there were enough asbestos that led to an exposure</p> <p>11 that was enough in order to cause a disease from</p> <p>12 one product, and it was pooled with another</p> <p>13 product that didn't have that same amount or</p> <p>14 didn't have any asbestos but you knew that there</p> <p>15 was enough to cause disease, then it would -- it</p> <p>16 would do exactly what you're saying, is it would</p> <p>17 move it towards -- towards one.</p> <p>18 The reality is there wouldn't be any</p> <p>19 impact whatsoever because the epidemiology already</p> <p>20 takes into account whatever those brands are, and</p> <p>21 so it doesn't change the totality of the evidence</p> <p>22 that we have available for us.</p> <p>23 So concept, I mean you could sort of</p> <p>24 imagine what you're saying to be true, but</p> <p>25 reality, no.</p>	<p>1 THE WITNESS: It -- it does not.</p> <p>2 As you ask these things, I'm trying to</p> <p>3 figure out if I'm supposed to explain what I'm</p> <p>4 saying or is --</p> <p>5 MS. BROWN: No, you answered the</p> <p>6 question.</p> <p>7 THE WITNESS: Okay.</p> <p>8 MS. BROWN: She'll ask you another one</p> <p>9 if she has one.</p> <p>10 THE WITNESS: Okay. All right.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Does Johnson & Johnson sell baby powder</p> <p>13 that's 99 percent asbestos and 1 percent</p> <p>14 fragrance?</p> <p>15 MS. BROWN: Objection to the form of the</p> <p>16 question.</p> <p>17 THE WITNESS: If they do, I'm not aware</p> <p>18 of that.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Okay. And if I understand, the presence</p> <p>21 of asbestos in a talcum powder product does not in</p> <p>22 your mind impact the biologically plausible</p> <p>23 mechanism for talcum powder products to cause</p> <p>24 ovarian cancer.</p> <p>25 MR. LOCKE: Objection.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 386</p> <p>1 THE WITNESS: No, there's not enough 2 information in what you said there. 3 BY MS. PARFITT: 4 Q What would you need? 5 A So I would need a couple of things. One 6 is I would need to have some estimate of what the 7 dose would be, and some assurance from somewhere, 8 which I don't have, that that represented a dose 9 that was sufficient to cause -- and by dose, I'm 10 talking about dose of asbestos, right -- that that 11 was a sufficient dose to cause ovarian cancer. 12 And based on what I've seen, I can't 13 make that link. I can't -- I haven't seen 14 anything that says that there's a plausible 15 concentration or dose that people would be exposed 16 to that links to anything I can find in the 17 epidemiologic literature about how much, if any, 18 it would take in order to -- to cause ovarian 19 cancer. And what I -- should I finish? 20 Q Mm-hmm, yeah, finish. 21 A Okay. I'm sorry. 22 Q I'm trying not to interpret you. 23 A No, no, you're not. I didn't mean -- I 24 didn't think you were. 25 Q So doing better.</p>	<p style="text-align: right;">Page 388</p> <p>1 And then I think if you -- if you pair 2 that with more modern studies, if you take like 3 the Reid study from Australia, you take women who 4 worked, you know, in and around a crocidolite 5 mine, they certainly had enough exposure to get 6 asbestos-related diseases, but they don't get 7 ovarian cancer. 8 And so I think that the -- you know, the 9 sum total of all that just -- it doesn't make 10 sense that just knowing the fact that there's some 11 particle -- even if it's true, that some particle 12 of asbestos is going to be enough to cause 13 disease. 14 Q Okay. Have you -- have you read -- I 15 didn't see it in your reliance list -- Reid, 2012? 16 A I have two Reeds, I think, and if I only 17 listed one, I meant to include two. 18 Q Yeah, you only listed 2011 Reid. You 19 didn't list 2012 Reid. 20 A I meant -- so I don't know which one is 21 there. There's one from Whitnum, which is the 22 study of the women that -- you know, that I was 23 just describing, and a separate one is -- it's 24 basic -- basically like a meta-analysis or a 25 reanalysis of the ovarian cancer and asbestos</p>
<p style="text-align: right;">Page 387</p> <p>1 A I didn't think you were. 2 So I mean there's more, right. I mean 3 so the -- if you look at IARC and what those 4 studies represented, they represent for the most 5 part -- and by IARC, I'm talking about IARC and 6 ovarian cancer and asbestos -- you know, mostly 7 circumstances that aren't typical of American 8 women. For example, so women in Europe who were 9 working at a time and place when there was 10 different forms and lots of asbestos that may have 11 been sufficient to cause other asbestos-related 12 diseases. 13 So if you -- if those -- if those 14 findings are absolutely accurate -- you know, you 15 take away the issue of misclassification or 16 anything else -- if they're absolutely accurate, 17 you've got a relative risk in the neighborhood of 18 like 1.75 or something like that. 19 So I'm not saying that's not an 20 important risk, but it's not a huge risk, right? 21 So we're taking heavy industrial exposure to get 22 to a 1.75. I haven't seen anything that could 23 tell me that anything we're talking about here 24 could possibly rise to the level of heavy 25 industrial exposure.</p>	<p style="text-align: right;">Page 389</p> <p>1 literature. 2 Q Okay. Do you recall from your reading 3 that the scientists in Reid 2012 determined that 4 childhood exposure to asbestos was associated with 5 an increased risk of cancer mortality which was 6 3.5 times greater than the general population? Do 7 you recall those numbers? 8 A I don't, but cancer mortality to -- 9 MS. BROWN: Objection. 10 THE WITNESS: Can you tell me which -- 11 because I don't remember which year links to which 12 Reid study. 13 BY MS. PARFITT: 14 Q That was the 2012 that I was speaking 15 of. 16 A No, I understand that. I heard the 17 year, but I don't know what the title is. 18 Q Oh, the title is "All-cause mortality in 19 cancer incidence among adults exposed to blue 20 asbestos during childhood." 21 A I think that's a third study then, 22 because I think the two I'm referring to are -- 23 are two different ones. 24 Q All right. So did you read the 2012 or 25 that just wasn't one you read?</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 390</p> <p>1 MS. BROWN: Well, Counsel, can you show 2 it to him and he'll tell you? 3 MS. PARFITT: Sure. 4 THE WITNESS: I don't know if either of 5 the ones that I cite, you know, that I'm familiar 6 with are from 2012, but I don't think I read the 7 one that you're talking about. 8 BY MS. PARFITT: 9 Q Okay. From looking at your curriculum 10 vitae and the studies you cited, you cited Reid -- 11 actually you cited three Reids. You cited Reid 12 2011, you cited Reid 2008, and you cited Reid 13 2009. The study that you did not cite was Reid 14 2012. 15 A That -- that sounds believable. That 16 makes sense. 17 Q All right. So for purposes of the 18 opinions in your report, you did not rely on Reid 19 2012, is that fair? 20 MS. BROWN: Objection to the form of the 21 question. 22 THE WITNESS: I -- I don't think I'm 23 familiar with that study. 24 BY MS. PARFITT: 25 Q Okay. Fair enough.</p>	<p style="text-align: right;">Page 392</p> <p>1 THE WITNESS: I'm not disagreeing with 2 you, I think that's the language they use, but 3 they -- they used their -- their strongest -- 4 their strongest grading. 5 BY MS. PARFITT: 6 Q How many of the IARC studies that formed 7 the basis for IARC's conclusion that asbestos 8 causes ovarian cancer was there information 9 concerning the exposure and the dose? 10 A So I think you said something that you 11 didn't mean to, because I think you said how many 12 of the IARC studies that IARC considered. I 13 think -- did you mean how many of the underlying 14 studies that IARC considered? 15 Q Correct. 16 A Okay. And so there's at least five that 17 I remember that were like sort of factory worker 18 type studies, and then I think there were a couple 19 of more. I'd have to go back, though, to look and 20 see what -- what they had about dose, if anything. 21 My -- I'm thinking like at least for the World 22 War II era ones, they probably didn't have good 23 measures at all, you know, if any. 24 Q Okay. Let me show you what I will have 25 marked as Exhibit 27.</p>
<p style="text-align: right;">Page 391</p> <p>1 Are you able to share with us, 2 Dr. Diette, what the minimum dose of asbestos is 3 necessary in order to cause an ovarian cancer? 4 MS. BROWN: Objection to the form of the 5 question. 6 THE WITNESS: I haven't seen that 7 published. I can tell you that at least in one of 8 those Whitnum studies that women were exposed to 9 as much as 40 fiber/cc years cumulatively of 10 crocidolite, and -- and that apparently wasn't 11 enough to cause ovarian cancer. But I didn't see, 12 you know, good measurements or estimates from 13 the -- the more historic to say what the exposures 14 were. 15 BY MS. PARFITT: 16 Q Okay. IARC looked at the issue of 17 asbestos and ovarian cancer, correct? 18 A They did. 19 MS. BROWN: Form. 20 THE WITNESS: Sorry. 21 BY MS. PARFITT: 22 Q All right. IARC concluded that asbestos 23 causes ovarian cancer. 24 MS. BROWN: Form. 25 MR. LOCKE: Objection.</p>	<p style="text-align: right;">Page 393</p> <p>1 (Diette Exhibit No. 27 was marked 2 for identification.) 3 MR. ROSEN: 26, for the record, is the 4 Surgeon General's report, which we'll supplement 5 with a paper copy. 6 THE WITNESS: The same one -- the same 7 one that we were talking about before the 8 secondhand smoke or involuntary smoke? 9 MR. ROSEN: Right, so there won't be a 10 26 in the file. 11 THE WITNESS: Got you. 12 BY MS. PARFITT: 13 Q Let me show you what we have marked as 14 Exhibit 27. 15 Do you have that in front of you? 16 A I have the "Arsenic, Metals, Fibres and 17 Dusts," 100C IARC. 18 Q That's correct, that's the right one. 19 Okay. Let me direct your attention to 20 the bottom of page 253. 21 Do you have that? 22 A 253? 23 Q 253, correct. 24 A I do. 25 Q All right. And it says: "An</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 394</p> <p>1 examination of the association between asbestos 2 and ovarian cancer was not undertaken by the IOM," 3 and then it has a 2000 -- a 2006 date. Correct? 4 A Yes. 5 Q Okay. Now, before we get to Table 2.8, 6 what I want you to do is turn over to page 256. 7 All right. And again, directing your 8 attention to the far right column. Are you there? 9 And it starts with, "Working group"? 10 A I am. I'm sorry, I'm distracted because 11 I think there's -- 12 MS. BROWN: It has a weird -- 13 THE WITNESS: -- there's like a font 14 issue or something, like somebody's printer didn't 15 have the right -- 16 BY MS. PARFITT: 17 Q That might have been ours. I apologize. 18 Not ideal circumstances. 19 All right. Do you see where it says, 20 "The working group"? 21 A I do. 22 Q All right. "The working group noted 23 that a causal association between exposure to 24 asbestos and cancer of the ovary was clearly 25 established based on five strongly positive cohort</p>	<p style="text-align: right;">Page 396</p> <p>1 Q Okay. Do you see where the working 2 group of IARC considered all of the data, and they 3 made a determination that there were not, at the 4 bottom, sufficient -- they ruled out the 5 possibility that there may have been a 6 misdiagnosis. 7 Do you see that? 8 MS. BROWN: Objection to the form. 9 THE WITNESS: I see that they've -- that 10 they reached that -- that conclusion. 11 BY MS. PARFITT: 12 Q Okay. And that's different than the 13 conclusion you raised in your report, correct? 14 A Well, it's different -- 15 MS. BROWN: Objection. 16 THE WITNESS: It is different, yes. 17 BY MS. PARFITT: 18 Q All okay. Right. Let's go back to 19 again page 253. 20 And you will see it references a table, 21 Table 2.8. Do you see that on the top of 254? 22 A Okay. 23 Q Okay. Got that. 24 Okay. Let me show you what we'll have 25 marked as Exhibit 28.</p>
<p style="text-align: right;">Page 395</p> <p>1 mortality studies of women with heavy occupational 2 exposure to asbestos." 3 Do you see that? 4 A I do. 5 Q Okay. And then if you go -- and then it 6 cites those studies. 7 Do you see that? 8 A I do. 9 Q And go down to where it starts: "The 10 working group carefully considered the 11 possibilities that cases of peritoneal 12 mesothelioma may have been misdiagnosed as ovarian 13 cancer, and that these contributed to the observed 14 excesses." 15 Do you see that? 16 A I do. 17 Q Okay. Did I read that correctly? 18 A Yes. 19 Q Okay. In your report you stated that it 20 was your belief that perhaps the results were 21 limited by virtue of the fact that there may have 22 been misdiagnosis between peritoneal mesothelioma 23 and ovarian cancer cases. 24 Do you remember writing that? 25 A I do.</p>	<p style="text-align: right;">Page 397</p> <p>1 (Diette Exhibit No. 28 was marked 2 for identification.) 3 BY MS. PARFITT: 4 Q Okay. Diette Exhibit 28, if you will. 5 There you go. 6 MS. PARFITT: And, Counsel, I have a 7 copy for you. 8 MS. BROWN: Thank you. 9 MS. PARFITT: Of course. 10 Sorry, guys. I'm going to need one. 11 I'm sorry. I'll give you this one later. 12 BY MS. PARFITT: 13 Q Okay. I will represent to you that that 14 is -- that is Table 2.8, which is referenced in 15 the IARC report on page 253 and 254. 16 And it says: "Epidemiological studies 17 of asbestos exposure and ovarian cancer," and then 18 in parens, "and for comparison, lung cancer and 19 mesothelioma." 20 Do you see that? 21 A I do. 22 Q All right. Look over at the first study 23 mentioned there, the Atkinson study from 1982. 24 A Mm-hmm. 25 Q All right. Do you see that the relative</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 398</p> <p>1 risk for ovarian cancer and lung cancer, for 2 ovarian cancer it was 2.75, and for lung cancer it 3 was 2.41. Do you see that? 4 A I do. 5 Q Okay. Then move down to the Wignall and 6 Fox study. It's a 1982 study. Do you see that? 7 A I don't -- oh, yeah, the next one down, 8 yeah. 9 Q Okay, yeah. Do you see that the 10 relative risk for ovarian cancer were 2.13, and 11 for lung cancer 2.73? 12 A Correct. 13 Q And let's move down to Pira in 2005. Do 14 you see where the relative risk for ovarian cancer 15 were 2.61 and for lung cancer 2.82? 16 A I do. 17 Q All right. And then let's move to 18 Magnani, a 2008 study. 19 All right. Do you see -- and this is 20 one of the studies that the working group of IARC 21 looked at. They determined that the relative risk 22 for -- not determined -- they indicated that the 23 relative risk for ovarian cancer on the Magnani 24 study was 2.27, and for lung cancer 2.20. 25 Do you see that?</p>	<p style="text-align: right;">Page 400</p> <p>1 BY MS. PARFITT: 2 Q Sure. 3 A In one of your questions a little while 4 back, you were asking me to agree that you were 5 reading fine, and you were for the relative risks. 6 Q Yeah. 7 A None of these are relative risks, 8 though. They're SMRs and SIRs. So just a 9 slightly different -- 10 Q I appreciate that. Thank you. Thank 11 you for the correction. Thank you. 12 Next question. Do you intend to give an 13 opinion that fibrous talc is a carcinogen? 14 MS. BROWN: Form. 15 THE WITNESS: I'm not sure I understand 16 what fibrous talc is. 17 BY MS. PARFITT: 18 Q Okay. Let me direct your attention 19 to -- we'll go back to the IARC on ovarian 20 cancer -- or, excuse me, IARC on asbestos. 21 Paragraph 1.1 on page 219. 22 Are you there? 23 A Paragraph 1, yes. 24 Q Yes. Okay. Do you see where after it 25 has IARC, '73, and USGS, 2001, it states: "The</p>
<p style="text-align: right;">Page 399</p> <p>1 A I do. 2 Q All right. And let's go on to the 3 Ferrante study. Do you see that? 4 MS. BROWN: Where -- where are you? 5 MS. PARFITT: On the last page. 6 BY MS. PARFITT: 7 Q Do you see that? It's on the last page, 8 Ferrante, 2007. Do you see that? 9 A I do. 10 Q Okay. And the relative risk for ovarian 11 cancer was 1.43, and for lung cancer it was 1.17. 12 Now, I'll represent to you, Doctor -- 13 or, Dr. Diette, is it fair to say that this 14 Table 2.8 of epidemiological exposures, asbestos 15 exposure and ovarian cancer formed part of the 16 bases for IARC's decision in their IARC report 17 that asbestos -- or ovarian -- asbestos causes 18 ovarian cancer? 19 A I assume so, yeah. 20 Q Okay. All right. Let's talk a little 21 bit -- do you intend to give an opinion in this 22 case that fibrous talc is a carcinogen? 23 MS. BROWN: Objection to the form. 24 THE WITNESS: I just want to correct 25 something real quick.</p>	<p style="text-align: right;">Page 401</p> <p>1 conclusions reached in this monograph about 2 asbestos and its carcinogenic risks apply to these 3 six types of fibres wherever they are found, and 4 that includes talc containing asbestiform fibres." 5 Do you see that? 6 A Yes. 7 Q All right. Do you intend to give an 8 opinion in this case that talc containing 9 asbestiform fibers can cause ovarian cancer? 10 MS. BROWN: Objection to the form. 11 That's different than the original question. 12 MS. PARFITT: It is. 13 MS. BROWN: Did you mean it to be? 14 MS. PARFITT: No. I mean the new 15 question. 16 MS. BROWN: Okay. 17 THE WITNESS: So, because to me, the way 18 I have read this before and then also again now, I 19 think, although I can't know what they were 20 intending, but this to me says basically talc with 21 asbestos in it -- what we would agree is talc with 22 asbestos in it, as opposed to something else. 23 And I don't think you need the "talc 24 containing." I think you could say anything 25 containing asbestos, you know, could potentially</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 402</p> <p>1 increase carcinogenic risk if there's enough of a 2 dose. 3 BY MS. PARFITT: 4 Q Okay. Did you see anywhere in the IARC 5 working group document that we've been talking 6 about that the working group determined that there 7 was a causal association between asbestos and 8 ovarian cancer, but it depended on the dose? 9 MR. LOCKE: Objection. 10 MS. BROWN: Objection to the form of the 11 question. 12 THE WITNESS: I don't recall. 13 BY MS. PARFITT: 14 Q Okay. You've worked an secondhand smoke 15 studies, correct? 16 A Yes. 17 Q How do you determine the dose for those? 18 MS. BROWN: Objection to the form. 19 THE WITNESS: So the dose of secondhand 20 smoke? 21 BY MS. PARFITT: 22 Q Mm-hmm. 23 A So it depends, right. So at the moment, 24 it -- so it depends upon which kind of study. And 25 when you say "you," do you mean you in the broad</p>	<p style="text-align: right;">Page 404</p> <p>1 sufficient dose. It's not a measurement of dose. 2 It's an indicator of sufficient -- sufficient 3 exposure to be linkable to things like lung 4 cancer. 5 The same kind of question for being 6 around coworkers, and so a yes/no to that has been 7 sufficient. 8 In our other studies, we -- we get more 9 precise so that we'll -- and use a variety of 10 overlapping methods. So one is to -- to query -- 11 if it's a child study, to query the parent about 12 the number of cigarettes that are smoked per day 13 in the home, and with a very elaborate procedure 14 of asking not only the person who is answering the 15 questionnaire but about all the other people that 16 are in and out of the house that day, so we get a 17 count of cigarettes. 18 We also use different types of 19 particulate matter monitors, and we've established 20 that you can estimate about 1 microgram per meter 21 cubed of particulate matter per cigarette smoked 22 in the home. So we've got an estimate that way. 23 We -- we collect nicotine and cotinine 24 from a variety of sources, so we've collected 25 hair, saliva, urine, and blood. And so depending</p>
<p style="text-align: right;">Page 403</p> <p>1 sense or me, Greg Diette? 2 Q Well, Greg Diette has been doing 3 research on secondhand smoke, and you, Greg 4 Diette, has indicated that dose is important to 5 you. So what I'd like to know is how you measure 6 the dose in your secondhand smoke. 7 A Yeah, so a lot of different -- 8 MS. BROWN: Objection. Dose is 9 important to him as it relates to secondhand 10 smoke, is that what the question is asking? 11 MS. PARFITT: No. 12 BY MS. PARFITT: 13 Q I was just reiterating that you, 14 Dr. Diette, have done several secondhand smoke 15 studies, correct? 16 A Yes. 17 Q Okay. And how do you measure the dose 18 in the studies that you have performed? 19 A So different ways, depending upon the 20 studies. So for some studies, it's simple enough 21 to ask, especially if you're talking about an 22 adult, whether or not they've had secondhand smoke 23 exposure from their parents, often broken down by 24 whether it's mother or father. And for some -- 25 some studies, that's a sufficient indicator of a</p>	<p style="text-align: right;">Page 405</p> <p>1 upon which study and which population, we can 2 estimate something about dose based on what 3 their -- what their sort of biomarker is. 4 Q All right. How much have you -- 5 understanding those metrics, for lack of a better 6 word, how much smoke does a patient need to 7 actually inhale? 8 MS. BROWN: For what? 9 BY MS. PARFITT: 10 Q In order to determine whether or not 11 they have been impacted by secondhand smoke. 12 MS. BROWN: Objection to the form. 13 THE WITNESS: That's a complicated 14 question, I guess, because we don't -- at least in 15 our studies, we don't measure -- like I don't know 16 what that means, like how much they inhale. I can 17 tell you, you know, what their absorbed dose is of 18 nicotine, right, which has some implication about 19 how much they might have inhaled, but I don't 20 relate that to like sort of a volume of smokey air 21 or something like that, the way that you might if 22 you were doing like a smoke machine, you know, 23 study. 24 So it's really -- it's implied, right. 25 If you find it in the urine and the blood, they</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 406</p> <p>1 inhaled it enough in order to get that particular 2 fluid level high enough to -- for you to measure 3 it. And same with saliva and same with hair. 4 BY MS. PARFITT: 5 Q Okay. 6 A I left one out too. We also measure 7 airborne nicotine, and so that's another 8 indicator. So I was talking about cotinine that's 9 measured in -- in the people, but we also have 10 nicotine matches, and we'll measure nicotine 11 directly in the environment. 12 Q Based upon -- I meant to ask this 13 earlier. Based upon your study of ovarian cancer 14 and talcum powder products that you've done for 15 Johnson & Johnson, have you made any of these 16 recommendations to Johnson & Johnson as to how -- 17 what kind of study they could perform in order to 18 ascertain dose? 19 MS. BROWN: What? 20 MR. LOCKE: Objection. 21 MS. BROWN: Objection to the form of the 22 question. 23 BY MS. PARFITT: 24 Q Let me ask it again. 25 A Oh, no, I heard it. I was just -- I</p>	<p style="text-align: right;">Page 408</p> <p>1 couple-year study and, you know, tens of thousands 2 of dollars spent doing it? 3 MR. LOCKE: Objection. 4 MS. BROWN: Objection to the form. 5 There are multiple questions in there, Counsel. 6 Can you rephrase? 7 BY MS. PARFITT: 8 Q Do you understand the question? 9 A The -- the last part you said -- I'll 10 try to paraphrase it so we know we're talking 11 about the same thing. I have not -- I have not 12 done anything to inform the medical community 13 about the findings so far from my -- you know, 14 from my work on these cases. 15 Q Do you intend to do so? 16 A I don't have any active intention to do 17 it right now. 18 Q Okay. Do you intend to have your report 19 peer -- published? 20 A It's not in the right format for that. 21 Q Okay. Do you intend to do any 22 meta-analysis of your work? 23 MS. BROWN: Objection to the form. 24 THE WITNESS: Not on that -- not on that 25 topic.</p>
<p style="text-align: right;">Page 407</p> <p>1 guess the broad answer is no. I mean I haven't 2 made any recommendations about studies to Johnson 3 & Johnson for -- for anything. 4 Q Okay. And the reason I ask is, your 5 work appears to be reviewing and surveying the 6 literature for Johnson & Johnson in order to give 7 litigation opinions on whether or not talcum 8 powder products can cause ovarian cancer. 9 MR. LOCKE: Objection. 10 MS. BROWN: Objection to the form of the 11 question. 12 BY MS. PARFITT: 13 Q Correct? 14 A Can you say it again? 15 Q Sure. 16 A I spaced out a little bit. 17 Q No, that's all right. It's getting late 18 in the day. 19 Your work for Johnson & Johnson appears 20 to be surveying the literature, preparing 21 litigation reports, and then giving testimony in a 22 court that the Johnson & Johnson product is safe. 23 And my question for you is, what have 24 you done in order to inform the scientific 25 community of the results of your -- your now</p>	<p style="text-align: right;">Page 409</p> <p>1 BY MS. PARFITT: 2 Q Okay. And if you saw with regard to 3 Health Canada, they have given -- they gave 4 individuals an opportunity to comment on the work 5 that they did and present that to them. 6 You saw that, correct? 7 A Yes. 8 Q Okay. So you had an opportunity as 9 someone who's reviewed the literature to write to 10 Health Canada and inform them of your concern 11 about the manner in which they conducted their 12 study. Fair? 13 MS. BROWN: Objection to the form, lacks 14 foundation. 15 THE WITNESS: I guess. I actually don't 16 know who they're asking. Like I haven't looked to 17 see whether they're looking for people outside of 18 Canada. 19 I don't even know who they are. I mean 20 the only reason I've heard of Health Canada is 21 because of this litigation and because something, 22 you know, opportunistic came up. But otherwise, I 23 mean I wouldn't be talking to Health Canada about 24 anything or reading whatever they've written. 25 BY MS. PARFITT:</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 410</p> <p>1 Q Something opportunist came up. Is that</p> <p>2 the fact that you are being engaged in this</p> <p>3 litigation --</p> <p>4 A No.</p> <p>5 MS. BROWN: Objection --</p> <p>6 BY MS. PARFITT:</p> <p>7 Q -- as an expert witness?</p> <p>8 MS. BROWN: Objection to the form.</p> <p>9 THE WITNESS: Oh, no, I just see -- I</p> <p>10 think the reason that I have it in front of me is</p> <p>11 because it -- it seemed to help -- help</p> <p>12 plaintiffs' experts to be able to say something</p> <p>13 else about this -- this story. And if -- if it</p> <p>14 had said something else, then I probably wouldn't</p> <p>15 even have heard about it.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q Okay. This story, Dr. Diette, is about</p> <p>18 women who are dying of ovarian cancer --</p> <p>19 MS. BROWN: Careful -- what's the</p> <p>20 question?</p> <p>21 BY MS. PARFITT:</p> <p>22 Q -- having been exposed to talcum powder</p> <p>23 products.</p> <p>24 Do you understand that?</p> <p>25 MR. LOCKE: Objection.</p>	<p style="text-align: right;">Page 412</p> <p>1 MS. BROWN: Objection.</p> <p>2 THE WITNESS: The only studies I've seen</p> <p>3 are the ones that -- I think that were cited by --</p> <p>4 by IARC with -- if that's what we're talking</p> <p>5 about, is like women who were about to have</p> <p>6 surgery for some other reason and -- and different</p> <p>7 things placed either in their uterus or vagina,</p> <p>8 although not necessarily talc. I mean all kinds</p> <p>9 of things, you know, carbon particles,</p> <p>10 radiolabeled particles, different things that</p> <p>11 aren't talc.</p> <p>12 (Counsel conferring.)</p> <p>13 BY MS. PARFITT:</p> <p>14 Q So sitting here today, is it your</p> <p>15 testimony that you have not reviewed or seen in</p> <p>16 the medical literature that particles of talc can</p> <p>17 migrate to the ovaries, lymph nodes, of a woman's</p> <p>18 body?</p> <p>19 MS. BROWN: Objection to the form of the</p> <p>20 question.</p> <p>21 MR. LOCKE: Objection.</p> <p>22 THE WITNESS: So -- so the study would</p> <p>23 be one where somebody applied talc to the perineum</p> <p>24 and then demonstrated that it migrated from there</p> <p>25 to the ovaries or into some lymph node somewhere?</p>
<p style="text-align: right;">Page 411</p> <p>1 MS. BROWN: Objection to the form of the</p> <p>2 question.</p> <p>3 THE WITNESS: I understand the general</p> <p>4 notion is about ovarian cancer and whether there</p> <p>5 is or is not a risk from talcum powder.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q I appreciate that.</p> <p>8 All right, Dr. Diette, do you agree that</p> <p>9 there is scientific evidence published in the</p> <p>10 peer-reviewed journal that talcum powder products</p> <p>11 can migrate from the vagina to the peritoneal</p> <p>12 capacity up through the ovaries?</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 MR. LOCKE: Objection.</p> <p>15 THE WITNESS: From the perineum?</p> <p>16 BY MS. PARFITT:</p> <p>17 Q From the perineum.</p> <p>18 MS. BROWN: Objection.</p> <p>19 THE WITNESS: I have not seen that.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Okay. Do you have -- have you seen in</p> <p>22 your review of the literature that talcum powder</p> <p>23 products can migrate from the vagina to the</p> <p>24 ovaries?</p> <p>25 MR. LOCKE: Objection.</p>	<p style="text-align: right;">Page 413</p> <p>1 BY MS. PARFITT:</p> <p>2 Q That's right.</p> <p>3 A I have not seen that study.</p> <p>4 Q Okay. You've read the Schildkraut</p> <p>5 study, correct?</p> <p>6 A Yes.</p> <p>7 Q Okay. Do you agree with the authors of</p> <p>8 the Schildkraut study that chronic inflammation</p> <p>9 resulting from the use of exposure to baby powder,</p> <p>10 whether through inhalation or through a</p> <p>11 transvaginal route, may lead to an increased risk</p> <p>12 of ovarian cancer?</p> <p>13 MR. LOCKE: Objection.</p> <p>14 MS. BROWN: Objection to the form of the</p> <p>15 question.</p> <p>16 THE WITNESS: I've read the study. I'd</p> <p>17 like to see whether that's in the introduction or</p> <p>18 the conclusion.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Okay. Let me show you Schildkraut.</p> <p>21 A Because it's certainly not a conclusion</p> <p>22 of their study.</p> <p>23 (Diette Exhibit No. 29 was marked</p> <p>24 for identification.)</p> <p>25 MS. BROWN: Do you guys want a number on</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 414</p> <p>1 this?</p> <p>2 MS. PARFITT: Sure. What number are we</p> <p>3 up to?</p> <p>4 MS. BROWN: Oh, 29. I'm sorry. It's</p> <p>5 there. My bad.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q Do you have that in front of you,</p> <p>8 Doctor?</p> <p>9 A I do.</p> <p>10 Q Okay. And if I can direct your</p> <p>11 attention to pages 14, 16.</p> <p>12 A Got you.</p> <p>13 Q Do you have that?</p> <p>14 Do you see where the authors state:</p> <p>15 "Lung inhalation of powder could be a biologically</p> <p>16 plausible mechanism for the association between</p> <p>17 nongenital powder use and increased EOC risk,</p> <p>18 particularly non-serous EOC."</p> <p>19 Do you see that?</p> <p>20 A I do. It's the top of the first column</p> <p>21 in the -- the rest of the incomplete paragraph.</p> <p>22 Q Okay. Do you see that?</p> <p>23 A I do.</p> <p>24 Q Okay. Do you agree with that?</p> <p>25 MR. LOCKE: Objection.</p>	<p style="text-align: right;">Page 416</p> <p>1 MR. LOCKE: Objection.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Okay. Do you agree that there is</p> <p>4 reliable scientific literature in the</p> <p>5 peer-reviewed studies to support that it is</p> <p>6 biologically plausible for talc products to</p> <p>7 migrate from the vagina to the ovaries following</p> <p>8 perineal application?</p> <p>9 A I'm not aware of that study that has</p> <p>10 shown that.</p> <p>11 Q Have you seen the Penninkilampi study?</p> <p>12 A Oh.</p> <p>13 MS. BROWN: Objection.</p> <p>14 THE WITNESS: Yes, I have.</p> <p>15 BY MS. PARFITT:</p> <p>16 Q Okay. Why don't we take a look at that.</p> <p>17 Let's pull it up, and we'll make it</p> <p>18 Exhibit No. 30.</p> <p>19 (Diette Exhibit No. 30 was marked</p> <p>20 for identification.)</p> <p>21 BY MS. PARFITT:</p> <p>22 Q Right here. And if I may, Doctor, let</p> <p>23 me direct your attention to the discussion section</p> <p>24 of Penninkilampi on page 45.</p> <p>25 A Page 45?</p>
<p style="text-align: right;">Page 415</p> <p>1 THE WITNESS: Only -- well, no. Only in</p> <p>2 the broadest sense that lots of things could be,</p> <p>3 but not because there's any evidence to show that</p> <p>4 inhalation of powder is a way to get to the</p> <p>5 ovaries.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q All right. So you dispute that</p> <p>8 inhalation of talcum powder products can cause</p> <p>9 ovarian cancer. Is that your testimony?</p> <p>10 A Inhalation?</p> <p>11 Q Inhalation.</p> <p>12 A I haven't seen any evidence that it can.</p> <p>13 I mean there's not affirmative evidence to say</p> <p>14 that it absolutely can't, but there's no evidence</p> <p>15 that there's been talcum powder inhaled, leading</p> <p>16 to other -- other diseases along the way, and I</p> <p>17 haven't seen any study that has shown that it can</p> <p>18 migrate from the lungs to the ovaries. And so --</p> <p>19 I mean people could say that, but it's not based</p> <p>20 on -- on studies.</p> <p>21 Q Does the fact that talcum powder</p> <p>22 products can be inhaled support a biologically</p> <p>23 plausible mechanism for talcum powder products to</p> <p>24 cause ovarian cancer?</p> <p>25 A No.</p>	<p style="text-align: right;">Page 417</p> <p>1 Q 45.</p> <p>2 A Yep.</p> <p>3 Q Do you have that?</p> <p>4 A I'm there, yep.</p> <p>5 Q Okay. It says: "The present</p> <p>6 meta-analysis" -- and it is meta-analysis,</p> <p>7 correct?</p> <p>8 A Yeah, part of this study is a</p> <p>9 meta-analysis.</p> <p>10 Q "The present meta-analysis reports a</p> <p>11 positive association between perineal talc use and</p> <p>12 ovarian cancer, specifically of the serous and</p> <p>13 endometriode -- and endometrioid histology site --</p> <p>14 subtypes. The mechanism by which perineal talc</p> <p>15 use may increase the risk of ovarian cancer is</p> <p>16 uncertain. It has been previously proposed that</p> <p>17 talc as a foreign body may ascend from the vagina</p> <p>18 through to the uterine tubes and instigate a</p> <p>19 chronic inflammatory response, which may</p> <p>20 predispose to the development of ovarian cancer."</p> <p>21 Did I read that correctly?</p> <p>22 A You did.</p> <p>23 Q Okay. Do you agree with that?</p> <p>24 MR. LOCKE: Objection.</p> <p>25 MS. BROWN: Objection to the form.</p>

105 (Pages 414 to 417)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 418</p> <p>1 THE WITNESS: So -- so I agree with a 2 lot of this, right. So I agree that the mechanism 3 is uncertain. Right. I agree that it has been 4 previously proposed 20 years ago by the citation 5 that they have that that may ascend from the 6 vagina, and instigate a chronic inflammation 7 response. 8 They don't cite anything more modern 9 than that one from 20 years ago, though. And 10 where it talks about it may be mutagenic and 11 promote carcinogenesis -- 12 BY MS. PARFITT: 13 Q Correct. 14 A -- I don't -- I don't think that's well 15 supported either. 16 Q Is migration of talc a biologically 17 plausible mechanism by which talc can reach the 18 ovaries? 19 MS. BROWN: Objection to the form. 20 MR. LOCKE: Objection. 21 THE WITNESS: If it were true, it could 22 be supportive of that. But I don't see any -- any 23 evidence that it's true. 24 BY MS. PARFITT: 25 Q Is biological plausibility essential for</p>	<p style="text-align: right;">Page 420</p> <p>1 inflammatory hypothesis, as repeated exposure 2 would induce a longer period of chronic 3 inflammation, and therefore should increase the 4 predisposition to the development of ovarian 5 cancer." 6 Did I read that correctly? 7 A You did. 8 Q All right. Do you agree with that 9 statement, that chronic inflammation as a 10 biologically plausible hypothesis could induce 11 carcinogenicity? 12 MR. LOCKE: Objection. 13 MS. BROWN: Counsel, are you 14 intentionally not reading the rest of that 15 paragraph? 16 MS. PARFITT: No, I -- I'm getting 17 there. 18 MS. BROWN: Okay. 19 MS. PARFITT: Yeah. 20 THE WITNESS: Well, I disagree with the 21 fact that the small difference between 3600, plus 22 or minus, lifetime applications supports a -- an 23 inflammatory theory, because that's got nothing 24 too do with inflammation. It's really just a -- a 25 total number of applications.</p>
<p style="text-align: right;">Page 419</p> <p>1 causality? 2 A No, it's -- it's one important criterion 3 to consider. 4 Q Does biological plausibility mean it 5 must be proved? 6 MS. BROWN: Objection. 7 THE WITNESS: And I assume we're talking 8 about in the context of a Bradford Hill? 9 BY MS. PARFITT: 10 Q Correct. 11 A Yeah, so -- so the answer is, no, it 12 doesn't have to be proved. 13 Q Look at the lower right-hand corner of 14 that article. 15 MS. BROWN: Are we done with that 16 paragraph, Counsel? 17 MS. PARFITT: We are. Thank you very 18 much, yeah. 19 BY MS. PARFITT: 20 Q And if you will go down to the lower 21 right, it starts with "We also found." 22 A Okay. 23 Q Do you see that? 24 Okay. It says: "This finding also 25 supports the chronic" -- I'm sorry -- "chronic</p>	<p style="text-align: right;">Page 421</p> <p>1 BY MS. PARFITT: 2 Q Perhaps I can simplify my answer. Do 3 you have an opinion as to whether or not chronic 4 inflammation can be a biologically plausible 5 method for promoting carcinogenesis? 6 MS. BROWN: Objection to the form. 7 THE WITNESS: In -- in all kinds of 8 cancer or ovarian cancer? 9 BY MS. PARFITT: 10 Q In ovarian cancer. 11 A So I -- I don't think there's strong 12 evidence to support that. 13 Q Is there evidence at all? 14 MS. BROWN: Let him finish. 15 THE WITNESS: So not much. I mean 16 there's -- I know that folks have looked at, you 17 know, whether NSAIDS and aspirin, whether that use 18 would lead to a limitation in risk, and it seems 19 like the -- the findings are kind of mixed. And 20 sometimes aspirin in a particular dose is 21 protective and aspirin of another dose is not. 22 That NSAIDS are sometimes protective, but mostly 23 not. 24 Since preparing my report, I saw 25 Dr. Shih -- Shih's report talking about the stick</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 422</p> <p>1 cells, like these precursor cells, and -- and at</p> <p>2 least, you know, from histologic specimens, not</p> <p>3 seeing evidence of inflammation. And I haven't</p> <p>4 really seen much that -- that would confirm that</p> <p>5 there's a link between chronic inflammation.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q What I'm asking you is, based upon your</p> <p>8 review, Dr. Diette, have you seen anything in the</p> <p>9 peer-reviewed literature that there are</p> <p>10 biologically plausible mechanisms of talc's</p> <p>11 carcinogenicity demonstrated by chronic</p> <p>12 inflammation from migration of the talc to the</p> <p>13 ovaries?</p> <p>14 MS. BROWN: Objection. I don't</p> <p>15 understand that question.</p> <p>16 MR. LOCKE: Objection.</p> <p>17 THE WITNESS: Would you --</p> <p>18 BY MS. PARFITT:</p> <p>19 Q The question -- let me rephrase it.</p> <p>20 A Okay.</p> <p>21 Q Is there -- are there studies in the</p> <p>22 peer-reviewed literature that support an</p> <p>23 association of inflammation and increased risk of</p> <p>24 ovarian cancer?</p> <p>25 MS. BROWN: Objection to the form, asked</p>	<p style="text-align: right;">Page 424</p> <p>1 BY MS. PARFITT:</p> <p>2 Q T-A-H-E-R.</p> <p>3 A Oh.</p> <p>4 Q 2018.</p> <p>5 A Sorry, I was saying Taher.</p> <p>6 Q No, no problem.</p> <p>7 A But I don't now how you --</p> <p>8 Q You could be right on that. Probably</p> <p>9 are.</p> <p>10 A I don't know.</p> <p>11 I did.</p> <p>12 Q Do you see where Taher authors found</p> <p>13 that there was biologically plausible evidence of</p> <p>14 inflammation from talc exposure?</p> <p>15 MS. BROWN: Objection. Counsel, can we</p> <p>16 see the article if you want to ask him about it?</p> <p>17 MR. LOCKE: Objection.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q You've read the article. Do you know</p> <p>20 the answer to that?</p> <p>21 MS. BROWN: But it's not a memory test.</p> <p>22 MS. PARFITT: No, it's not, but perhaps</p> <p>23 he can answer. I didn't ask you the question.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Do you know the answer to that?</p>
<p style="text-align: right;">Page 423</p> <p>1 and answered.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Is there something in the literature?</p> <p>4 MS. BROWN: Objection.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Not whether there is a lot or a little.</p> <p>7 Is there anything in the peer-reviewed literature</p> <p>8 that you've seen that supports an association</p> <p>9 between inflammation and an increased risk of</p> <p>10 ovarian cancer?</p> <p>11 MS. BROWN: Objection to the form.</p> <p>12 THE WITNESS: I've seen the paper where</p> <p>13 C-reactive protein in the serum popped out of</p> <p>14 dozens of different markers of inflammation and</p> <p>15 predated the diagnosis of ovarian cancer.</p> <p>16 I guess I haven't really seen something</p> <p>17 that shows that chronic inflammation in the</p> <p>18 ovaries is -- is a precursor to ovarian cancer or</p> <p>19 that talc induces that particular chronic</p> <p>20 inflammation that would in turn lead to cancer.</p> <p>21 BY MS. PARFITT:</p> <p>22 Q Have you read Taher? You've read the</p> <p>23 Taher study, correct?</p> <p>24 MR. LOCKE: Objection.</p> <p>25 THE WITNESS: How do you spell it?</p>	<p style="text-align: right;">Page 425</p> <p>1 A Well, the paper wasn't about that, so I</p> <p>2 don't -- I don't remember whether there was sort</p> <p>3 of a preamble thing, but they -- they weren't</p> <p>4 really analyzing that. They were doing a</p> <p>5 meta-analysis, you know, sort of combining the epi</p> <p>6 studies. So, I mean, I don't remember what their</p> <p>7 statement was, but when you --</p> <p>8 Q All right. Did you --</p> <p>9 A I'm sorry, I just want to say, but if</p> <p>10 you say that they found it, by finding it, I don't</p> <p>11 think they demonstrated it or it was a finding</p> <p>12 from their study per se.</p> <p>13 Q Okay. Have you read Langseth, 2008?</p> <p>14 A Langseth, 2008?</p> <p>15 Q Correct.</p> <p>16 A Is that a meta-analysis?</p> <p>17 Q Correct.</p> <p>18 A Yes.</p> <p>19 Q All right. And do you see where the</p> <p>20 Langseth authors also found migration and -- and</p> <p>21 concluded that there was chronic inflammation that</p> <p>22 was biologically plausible?</p> <p>23 MS. BROWN: No, I -- I object. If</p> <p>24 you're going to quote articles --</p> <p>25 BY MS. PARFITT:</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 426</p> <p>1 Q Do you remember?</p> <p>2 MS. BROWN: -- I would request the</p> <p>3 article.</p> <p>4 MS. PARFITT: I can do that.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Do you know, Doctor?</p> <p>7 A I don't remember what they said.</p> <p>8 (Counsel conferring.)</p> <p>9 MS. PARFITT: Doctor, if we can take a</p> <p>10 quick break here --</p> <p>11 THE WITNESS: Sure.</p> <p>12 MS. PARFITT: -- right now, so maybe I</p> <p>13 can --</p> <p>14 THE WITNESS: Yeah, it's a good time.</p> <p>15 MS. PARFITT: -- shorten things.</p> <p>16 THE VIDEOGRAPHER: The time is 4:59 p.m.</p> <p>17 We're going off the record.</p> <p>18 (Recess.)</p> <p>19 THE VIDEOGRAPHER: The time is 5:12 p.m.</p> <p>20 and we're back on the record.</p> <p>21 MS. PARFITT: I apologize.</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Dr. Diette, and I apologize, I have only</p> <p>24 one copy that isn't marked up, so we're going to</p> <p>25 have to put this and substitute it on the -- on</p>	<p style="text-align: right;">Page 428</p> <p>1 He doesn't have the article.</p> <p>2 MS. PARFITT: That's fine.</p> <p>3 MS. BROWN: And he's never read it.</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Look at the abstract, first sentence.</p> <p>6 It says: "Perineal talc use is associated with</p> <p>7 ovarian carcinoma in many case-control studies.</p> <p>8 Such talc may migrate to pelvic organs and</p> <p>9 regional lymph nodes, with both clinical and legal</p> <p>10 significance."</p> <p>11 Did I read that correctly?</p> <p>12 A Yes.</p> <p>13 Q All right. Would it be -- I believe you</p> <p>14 had some concerns about the Heller study that we</p> <p>15 talked about earlier because it involved some</p> <p>16 unexposed -- what you testified were unexposed</p> <p>17 women.</p> <p>18 MS. BROWN: Objection to the form.</p> <p>19 THE WITNESS: Correct, women who</p> <p>20 reported not being perineal talc users.</p> <p>21 BY MS. PARFITT:</p> <p>22 Q Right. Okay. You understand in this</p> <p>23 study that what Drs. McDonald and Godleski were</p> <p>24 doing were looking at particles in exposed women.</p> <p>25 MS. BROWN: No, he doesn't understand</p>
<p style="text-align: right;">Page 427</p> <p>1 the ELMO, if I may. We've done pretty good with</p> <p>2 copies all day today.</p> <p>3 So here we go.</p> <p>4 MR. ROSEN: This will be Exhibit 31.</p> <p>5 (Diette Exhibit No. 31 was marked</p> <p>6 for identification.)</p> <p>7 BY MS. PARFITT:</p> <p>8 Q All right. Dr. Diette, this is an</p> <p>9 article from Ultrastructural Pathology, and it's</p> <p>10 entitled "Correlative polarizing light and</p> <p>11 scanning electron microscopy for the assessment of</p> <p>12 talc in pelvic region lymph nodes."</p> <p>13 Do you see that?</p> <p>14 A I do.</p> <p>15 Q And the lead author is Dr. McDonald,</p> <p>16 along with Cramer and Godleski, and others.</p> <p>17 Do you see that?</p> <p>18 A I do.</p> <p>19 Q All right. This is published in 2019.</p> <p>20 Have you had an opportunity to review</p> <p>21 this article?</p> <p>22 A I have not seen this one.</p> <p>23 Q Okay. I just have one question about</p> <p>24 it. And if --</p> <p>25 MS. BROWN: Well, I'm going to object.</p>	<p style="text-align: right;">Page 429</p> <p>1 that because he doesn't have the study and he</p> <p>2 hasn't read it. I object. It's not fair.</p> <p>3 THE WITNESS: I honestly have no idea</p> <p>4 what they've done.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Okay. Well, do you dispute that talc</p> <p>7 particles can migrate to the pelvic organs and</p> <p>8 regional lymph nodes?</p> <p>9 A I don't -- I don't know.</p> <p>10 MR. LOCKE: Asked and answered.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q You don't know. You don't know. You</p> <p>13 don't know one way or another?</p> <p>14 MS. BROWN: Objection, misstates his</p> <p>15 private -- his prior testimony.</p> <p>16 THE WITNESS: Migrate from where to</p> <p>17 where? From --</p> <p>18 BY MS. PARFITT:</p> <p>19 Q It says right here: "Talc may migrate</p> <p>20 to pelvic organs and regional lymph nodes."</p> <p>21 MS. BROWN: Right, but he can't --</p> <p>22 THE WITNESS: Oh, I saw the "to," but I</p> <p>23 don't see the "from."</p> <p>24 BY MS. PARFITT:</p> <p>25 Q Does it make a difference to you?</p>

108 (Pages 426 to 429)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 430</p> <p>1 MS. BROWN: Of course.</p> <p>2 BY MS. PARFITT:</p> <p>3 Q If it's from the vaginal area to the</p> <p>4 ovaries and the lymph nodes, does that make a</p> <p>5 difference whether --</p> <p>6 MR. LOCKE: Objection.</p> <p>7 MS. BROWN: Objection to the form, lacks</p> <p>8 foundation, calls for speculation about a document</p> <p>9 he told you he's never read.</p> <p>10 MR. LOCKE: Does the witness have a</p> <p>11 copy?</p> <p>12 MS. BROWN: No. That's the objection.</p> <p>13 MS. PARFITT: Tom, we didn't -- we only</p> <p>14 have one copy of it.</p> <p>15 MR. LOCKE: I think you need to disclose</p> <p>16 to the witness that three of these authors are</p> <p>17 paid experts, et cetera --</p> <p>18 MS. PARFITT: Tom, Tom, Tom, Tom.</p> <p>19 MR. LOCKE: Come on.</p> <p>20 MS. BROWN: No, but to be fair, you</p> <p>21 guys, if you want to ask him questions, he's got</p> <p>22 to look at it. I'm going to take it off the ELMO</p> <p>23 and give it to him if you're going to continue</p> <p>24 asking him questions.</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 432</p> <p>1 You had testified earlier that you</p> <p>2 disagree with Health Canada when they state that</p> <p>3 talc can migrate to the ovaries; is that correct?</p> <p>4 MR. LOCKE: Objection.</p> <p>5 MS. BROWN: Objection. Misstates prior</p> <p>6 testimony. I don't even think he said that.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Well, let me ask you. In the Health</p> <p>9 Canada report, they discuss the fact that it is</p> <p>10 biologically plausible for talc to migrate to the</p> <p>11 ovaries and then cause an inflammatory process.</p> <p>12 Do you agree or disagree with that?</p> <p>13 MR. LOCKE: Objection.</p> <p>14 MS. BROWN: Objection. Lacks</p> <p>15 foundation. Do you want to show him where they</p> <p>16 said that?</p> <p>17 THE WITNESS: I don't remember their</p> <p>18 statement about that.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q You don't. Okay.</p> <p>21 How about this statement. Go down to --</p> <p>22 I believe it's -- one, two, three -- the third</p> <p>23 paragraph. Do you see that? It starts with</p> <p>24 "While."</p> <p>25 A No.</p>
<p style="text-align: right;">Page 431</p> <p>1 Q I'm not going to ask him any more</p> <p>2 questions on it, Doctor.</p> <p>3 A Okay. Thank you.</p> <p>4 Q All right. Let me show you --</p> <p>5 MR. LOCKE: Come on. Give him -- if</p> <p>6 you're going to give him -- if you're going to ask</p> <p>7 him about it --</p> <p>8 MR. TISI: You're not even on record.</p> <p>9 MS. PARFITT: Tom, it was just --</p> <p>10 MS. BROWN: Hey, hey, hey, guys. It's</p> <p>11 the end of the day.</p> <p>12 MS. PARFITT: Okay. Let's don't --</p> <p>13 MS. BROWN: Let's get through this.</p> <p>14 (Diette Exhibit No. 32 was marked</p> <p>15 for identification.)</p> <p>16 BY MS. PARFITT:</p> <p>17 Q 32. Let me show you what's been marked</p> <p>18 as Plaintiffs' Exhibit 32.</p> <p>19 I need a copy. There you go. Sorry.</p> <p>20 A Thank you.</p> <p>21 Q Okay. You previously testified that you</p> <p>22 -- take a look at it. You read this before, the</p> <p>23 FDA letter 2014?</p> <p>24 A I've seen this.</p> <p>25 Q Okay. Very good.</p>	<p style="text-align: right;">Page 433</p> <p>1 Q No?</p> <p>2 A Oh, I'm on a different page.</p> <p>3 Q I'm sorry. Page 5. Page 5.</p> <p>4 A Okay.</p> <p>5 Q Okay. "While there exists no direct</p> <p>6 proof of talc and ovarian carcinogenesis, the</p> <p>7 potential for particles to migrate from the</p> <p>8 perineum into the vagina to the peritoneal cavity</p> <p>9 is indisputable."</p> <p>10 Do you see that?</p> <p>11 A I do.</p> <p>12 Q Okay. Do you agree with the FDA?</p> <p>13 MS. BROWN: Objection to the form.</p> <p>14 THE WITNESS: So there's no citation for</p> <p>15 that. I don't know how they get -- I mean I don't</p> <p>16 know why they make that statement, and I -- it</p> <p>17 certainly doesn't seem to be indisputable, because</p> <p>18 there -- several of the articles that we've looked</p> <p>19 at today and others say it's not clear what the</p> <p>20 mechanism is or the biologic plausibility. So</p> <p>21 it's -- it's obviously disputable, at the very</p> <p>22 least, but there's no citation, so it's hard to</p> <p>23 know how to -- how to process this.</p> <p>24 BY MS. PARFITT:</p> <p>25 Q If this is the FDA's position with</p>

109 (Pages 430 to 433)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 434</p> <p>1 regard to whether or not talc can migrate, do you 2 dispute that?</p> <p>3 MS. BROWN: Objection. Misstates the 4 document.</p> <p>5 THE WITNESS: I don't -- I don't dispute 6 that they said it obviously, because it's right 7 here, but there's just no citation for it, and 8 there's no information that tells who in 9 particular thinks that.</p> <p>10 BY MS. PARFITT:</p> <p>11 Q Well, the Food and Drug Administration 12 is our regulatory body here in the United States, 13 correct?</p> <p>14 A It is one.</p> <p>15 MR. LOCKE: Objection.</p> <p>16 BY MS. PARFITT:</p> <p>17 Q All right. Would you agree that 18 dissemination of information that is accurate and 19 truthful is -- is something that they would 20 probably take quite seriously? Would you agree?</p> <p>21 MS. BROWN: Objection.</p> <p>22 THE WITNESS: I -- I hope so.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q Right. And would you agree that the FDA 25 would not be disseminating information about the</p>	<p style="text-align: right;">Page 436</p> <p>1 think my answer was along the lines of I haven't 2 seen a study that shows that that's true.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q We talked about Schildkraut. We talked 5 about Schildkraut, didn't we?</p> <p>6 A Yeah, they didn't show that either, 7 though.</p> <p>8 Q When you say they didn't show it, have 9 they opined in medical -- or let me ask you this 10 question. I see the disconnect.</p> <p>11 Is there evidence contained in 12 peer-reviewed scientific articles wherein it is 13 stated that talcum powder products can migrate to 14 the ovaries?</p> <p>15 MS. BROWN: Objection.</p> <p>16 MR. LOCKE: Objection.</p> <p>17 MS. BROWN: Misstates everything we've 18 looked at and his testimony.</p> <p>19 THE WITNESS: I think there's been 20 opinions of different people in different articles 21 that are both supportive and not supportive of 22 that statement.</p> <p>23 BY MS. PARFITT:</p> <p>24 Q All right. So you've seen scientific 25 writers who have said talc can migrate to the</p>
<p style="text-align: right;">Page 435</p> <p>1 potential for particulates to migrate from the 2 perineum, the vagina to the peritoneal cavity, and 3 say it's indisputable if they didn't have some 4 evidence?</p> <p>5 MS. BROWN: Objection. Calls for 6 speculation.</p> <p>7 MR. LOCKE: Objection.</p> <p>8 THE WITNESS: I don't know why they 9 wrote it. I just think it would be odd to find 10 that the FDA knew this, and it's not out there 11 generally otherwise. I mean I don't -- I don't 12 know what they considered.</p> <p>13 BY MS. PARFITT:</p> <p>14 Q When you say it's not out there 15 generally, we talked today about several 16 peer-reviewed articles that have in fact talked 17 about talcum powder part- -- particles migrating 18 to the ovaries, have we not?</p> <p>19 MS. BROWN: Objection. We have not.</p> <p>20 THE WITNESS: No, I was going to say, I 21 mean, you've said that a lot, but I mean -- but we 22 haven't looked at a study that shows that. I mean 23 we've talked about whether -- whether or not talc 24 applied to the perineum has been shown to migrate 25 to the ovaries, and a bunch of questions back, I</p>	<p style="text-align: right;">Page 437</p> <p>1 ovaries, and you've seen scientific articles that 2 say that's more questionable. Is that fair?</p> <p>3 MS. BROWN: Objection. Not fair.</p> <p>4 Misstates prior --</p> <p>5 THE WITNESS: It's sort of fair, but I 6 can't find anybody who's actually shown that it's 7 true. I mean, you know, people may write that, 8 but I mean I haven't seen a study that's shown 9 that you can actually apply talc to the perineum 10 and then find it in the ovaries.</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Okay. Let me show you what we'll have 13 marked as exhibit -- oh, thank you. 14 (Counsel conferring.)</p> <p>15 BY MS. PARFITT:</p> <p>16 Q It's the end of the day, and we are 17 running out of copies, Doctor.</p> <p>18 Let me show you -- 19 (Diette Exhibit No. 33 was marked 20 for identification.)</p> <p>21 MR. ROSEN: Exhibit 33.</p> <p>22 MS. PARFITT: Beg your pardon? 33?</p> <p>23 THE WITNESS: This one says 32 on it.</p> <p>24 MR. ROSEN: Ah, you're correct.</p> <p>25 BY MS. PARFITT:</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 438</p> <p>1 Q So I'm going to share this with you, 2 and -- actually, if we could put it on the ELMO, 3 and then I will give it to you so I can at least 4 identify it for counsel. 5 Is that fair? 6 A Yeah. We will see how it goes. 7 Q All right. Let me show you -- it is 8 marked September 30th, 2004, and I will represent 9 that it is to Bill Ashton from Richard Zazenski, 10 and it's a Luzenac document. 11 MS. BROWN: What? I'm going to object 12 on form and foundation. 13 BY MS. PARFITT: 14 Q Okay. Can you see that, Doctor? I 15 don't want to strain your eyes too much. 16 MS. BROWN: No, we need to give him -- 17 he's never seen it. He hasn't reviewed it. His 18 opinions are not based on it. If you want to ask 19 him questions about it, he needs to hold it and 20 look at it. 21 BY MS. PARFITT: 22 Q I'm going to give it to you. I'm going 23 to let you hold it in one moment. 24 Dr. Diette, this is a document I will 25 represent that's dated September 30, 2004, and</p>	<p style="text-align: right;">Page 440</p> <p>1 Take a moment and take a look at that, to eyeball 2 that. 3 MS. BROWN: Take as long as you need to 4 inform your response -- 5 MS. PARFITT: It's a one-page document. 6 MR. LOCKE: No. This -- this is a 7 document that he hasn't seen before. 8 MS. PARFITT: That's correct. 9 MR. LOCKE: Why don't we go off the 10 record. 11 MS. PARFITT: It's one page, Doctor. 12 MS. BROWN: Right, and that's just fair. 13 MS. MILLER: If you're going to ask him 14 questions about what you just threw out there -- 15 MS. BROWN: That's fine. That's fine, 16 but you understand there's no foundation. He's 17 never relied it. 18 MS. PARFITT: Okay, guys -- 19 MS. BROWN: So if we want to ask 20 questions -- 21 THE REPORTER: Excuse me. 22 MS. PARFITT: I'm not having him -- 23 whoa, whoa. 24 (A discussion was held off the record.) 25 BY MS. PARFITT:</p>
<p style="text-align: right;">Page 439</p> <p>1 that would have preceded any litigation. 2 And it states: "Bill, I came across 3 this paper this morning published in the April 4 2004 journal Human Reproduction, an official 5 journal of the European Society for Human 6 Reproduction and Embryology. It offers some 7 compelling evidence in support of the migration 8 hypothesis. Combine this evidence with the theory 9 that the talc deposition on the ovarian epithelium 10 initiates epithelium inflammation, which leads to 11 epithelium carcinogenesis, and you have a 12 potential formula for NTP classifying talc as a 13 causative agent in ovarian cancer." 14 Now, did I read that correctly? 15 A Yes. 16 Q So let me -- because counsel wants you 17 to hold it, let me have you take -- 18 MS. BROWN: Well, only if you're going 19 to ask him questions about it. 20 MS. PARFITT: I am. I am. But I can't 21 do both. 22 BY MS. PARFITT: 23 Q I've got to hand it to you because she 24 says she wants you to hold it. 25 And attached to that is the article.</p>	<p style="text-align: right;">Page 441</p> <p>1 Q Dr. Diette, I'm simply referring to the 2 cover letter. 3 A Oh. 4 Q And that's all, just one page. Do you 5 see that? 6 A I do. 7 Q Okay. And that's what I just read into 8 the record. Do you see that? 9 A I do. 10 Q Okay. And do you see back in 2004, 11 there was information with regard -- and I have to 12 see it, I can't be -- sorry. I can't memorize it 13 either. 14 So you see back in 2004, the company's 15 being advised that there is indeed literature 16 compelling evidence in support of a migration 17 hypothesis -- 18 MS. BROWN: Object. 19 BY MS. PARFITT: 20 Q -- that was shared between the two 21 companies. 22 Did J&J ever share with you this 23 document that they had in their company files that 24 they had support -- actually compelling evidence 25 of support of the migration hypothesis?</p>

111 (Pages 438 to 441)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 442</p> <p>1 MS. BROWN: Objection to the speech, 2 lacks foundation. I also believe that's an Imerys 3 document. 4 THE WITNESS: So a few things, right. 5 So one is I -- I've never seen that, so I don't 6 even know what it is. I don't know who those 7 people are. That -- I don't know what their 8 qualifications are to consider something to be 9 compelling evidence or if that's the word that was 10 used. 11 BY MS. PARFITT: 12 Q Mm-hmm. 13 A I have not seen the article that's 14 attached to the back of it. 15 Q Okay. 16 A But it's hard to say much about that. 17 Q Yes. 18 Let me show you what we will have marked 19 as Exhibit 34, and I'll represent to you it's an 20 article by Roberta Ness, "Possible Role of Ovarian 21 Epithelial Inflammation." 22 (Diette Exhibit No. 34 was marked 23 for identification.) 24 BY MS. PARFITT: 25 Q Have you seen this article before?</p>	<p style="text-align: right;">Page 444</p> <p>1 it -- that this -- is this an e-mail or a fax? It 2 has something from Ness's paper or Ness's paper 3 has something from this -- 4 BY MS. PARFITT: 5 Q They have something from Ness's paper, 6 correct. 7 MS. BROWN: Well, objection. 8 THE WITNESS: But this is -- 9 MS. BROWN: Don't -- don't speculate. 10 No one wants you to guess. 11 MS. PARFITT: So we won't talk about -- 12 MS. BROWN: Just wait for a question, 13 and we'll do the best we can. 14 BY MS. PARFITT: 15 Q Okay. Do you see on the first page of 16 Dr. Ness's article, in the left-hand column 17 towards the bottom, where Dr. Ness states: 18 "Inflammation entails cell damage, oxidative 19 stress, and elevations of cytokines and 20 prostaglandins, all of which may be mutagenic. 21 The possibility that inflammation is a 22 pathophysiological contributor to the development 23 of ovarian cancer suggests a directed approach to 24 future research." 25 Do you see that?</p>
<p style="text-align: right;">Page 443</p> <p>1 A I have. 2 Q Okay. Do you see on page 2 -- 3 MS. PARFITT: Where is the other one? 4 (Counsel conferring.) 5 BY MS. PARFITT: 6 Q If I could -- you have in front of you 7 the Zazenski -- thank you. 8 Okay. Now, do you see the graph, I'll 9 call it, it's the chart there on Zazenski? And 10 then look at Figure No. 1. Do you see that, 11 "Inflammation is a common mechanism underlying 12 ovarian cancer"? 13 A I do. 14 Q Okay. And do you see that -- you can 15 look at it. Do you see that that's the same 16 figure in the Zazenski letter as it is in 17 Dr. Ness's letter? Do you see that? 18 MS. BROWN: Objection to the form, lacks 19 foundation. 20 BY MS. PARFITT: 21 Q Or Dr. Ness's report. 22 MS. BROWN: Same objection. 23 THE WITNESS: I mean it -- it looks the 24 same. 25 But what does that mean? Does that mean</p>	<p style="text-align: right;">Page 445</p> <p>1 A I do. 2 Q Okay. Do you agree with that statement? 3 MR. LOCKE: Objection. 4 MS. BROWN: Objection to the form. 5 THE WITNESS: So, I haven't read this 6 article in a while. It is from about 20 years 7 ago. And so I don't know if 20 years ago that was 8 a reasonable thing to consider, but it sounds as 9 if 20 years have gone by and this still hasn't 10 been proven. And so whether I agree with it still 11 now, I'm not sure. I'm not sure if it would be a 12 fruitful endeavor or not. 13 BY MS. PARFITT: 14 Q Does biological plausibility mean that 15 something must be proven? 16 MR. LOCKE: Objection. Asked -- 17 MS. BROWN: Objection. Asked and 18 answered. 19 THE WITNESS: It doesn't mean that 20 it's -- that it's been proven, but it's one of the 21 ways to provide supportive information about 22 whether or not an observed association is causal 23 or not. 24 BY MS. PARFITT: 25 Q Okay. So you agree that you do not --</p>

112 (Pages 442 to 445)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 446</p> <p>1 one does not need to prove mechanism in order to 2 find causality, correct? 3 A I need to prove -- 4 MR. LOCKE: Objection. 5 MS. BROWN: Objection to form. 6 THE WITNESS: Sorry. Wow, sorry. 7 BY MS. PARFITT: 8 Q We had a chorus. 9 A Yeah. 10 No, you don't need to prove it, but 11 it's -- 12 Q You don't need to prove mechanism. 13 A You don't need to prove mechanism in 14 order to establish causation, but it's hard to get 15 there for a low observed risk if you don't have 16 biological plausibility. 17 Q I'll take that back -- yes, I'm sorry. 18 I hope I didn't ask you this before, but 19 is biological plausibility the same as proof of 20 mechanism? 21 MR. LOCKE: Objection. 22 MS. BROWN: Objection to the form of the 23 question. 24 THE WITNESS: Proof of -- I don't know 25 if I would use the -- so "proof of mechanism"</p>	<p style="text-align: right;">Page 448</p> <p>1 exposure can lead to the outcome that you're 2 interested in. 3 BY MS. PARFITT: 4 Q Okay. Doctor, from your review of the 5 peer-reviewed scientific literature, have you read 6 where study authors who have actually looked at 7 the issue of migration and other biological 8 plausible methods by which talc can get to the 9 ovary? 10 A I guess -- 11 MS. BROWN: I object. I don't 12 understand. 13 THE WITNESS: I mean I've looked at both 14 the human and the animal studies that I could find 15 cited on the topic. And -- and you said that 16 talc -- talc can get to the ovary? 17 BY MS. PARFITT: 18 Q Mm-hmm. 19 A Because, you know, some are not talc, 20 right. There -- there are other kinds of 21 particles or substances. And so I've looked at 22 both the animal and the human studies that I could 23 find. 24 Q And in those studies that you have 25 reviewed, have you seen where those authors who</p>
<p style="text-align: right;">Page 447</p> <p>1 sounds like a term in a way, but maybe not one 2 that's in my vocabulary. Like people talk about 3 proof of concept just as a study design, which -- 4 I don't know if that's the same thing, but I 5 don't -- I don't -- I don't know "proof of 6 mechanism" as a -- as a term. 7 (Counsel conferring.) 8 MS. PARFITT: Let's go off the record 9 for a moment. 10 THE VIDEOGRAPHER: The time is 5:30 p.m. 11 We're going off the record. 12 (Recess.) 13 THE VIDEOGRAPHER: The time is 5:37 p.m. 14 and we're back on the record. 15 BY MS. PARFITT: 16 Q Doctor, what is your definition of 17 "biological plausibility"? 18 MS. BROWN: Objection. Asked and 19 answered. 20 THE WITNESS: I don't have a single one. 21 I think it's in my report somewhere, or at least 22 what I tried to capture from Bradford Hill's 23 statement, but in a general sense, you know, being 24 evidence that whatever -- if we're talking about 25 an exposure, that there is a pathway by which that</p>	<p style="text-align: right;">Page 449</p> <p>1 have studied the issue of biological plausibility 2 and mechanisms by which talc can get to the ovary 3 have concluded in their articles that that is 4 indeed a pathway? 5 MS. BROWN: Objection. 6 MR. LOCKE: Objection. 7 MS. BROWN: Misstates his testimony and 8 the documents. 9 THE WITNESS: That there is -- well, I 10 guess we've got to -- we'd have to look at each 11 one, right. Because, I mean, there's ones like, 12 for example, you know, if we're talking about 13 humans, like where women are basically placed 14 upside down in a -- in an usual position and 15 having something deposited directly into their 16 vagina, and then that may or may not then migrate 17 to their ovaries, but that wouldn't be the same as 18 saying that's a plausible mechanism for applying 19 something to the perineum and then finding it in 20 the ovaries. 21 And then I just want to -- I don't have 22 a lot to say about it, but I would just say with 23 the animals, it looks like certain animals that 24 application of -- of particles does, and then in 25 others it doesn't migrate. And then so I -- I</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 450</p> <p>1 took that as kind of mixed evidence that even in</p> <p>2 animals, assuming that there is an appropriate</p> <p>3 animal model, that they're not getting the same</p> <p>4 answer based on which animal it is.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q Does exposure of a disease have to be</p> <p>7 proven in order to have a biologically plausible</p> <p>8 mechanism?</p> <p>9 MS. BROWN: Objection to the form.</p> <p>10 MR. LOCKE: Objection.</p> <p>11 THE WITNESS: So I don't know if I</p> <p>12 understand that. So are you saying that -- so say</p> <p>13 it again. I'm sorry.</p> <p>14 BY MS. PARFITT:</p> <p>15 Q Sure. It was probably a bad question.</p> <p>16 MS. BROWN: The realtime --</p> <p>17 BY MS. PARFITT:</p> <p>18 Q Does one need -- does a scientist need</p> <p>19 to know the precise mechanism in order to</p> <p>20 determine whether or not it's biologically</p> <p>21 plausible for some toxin to cause some disease?</p> <p>22 MS. BROWN: Objection to the form.</p> <p>23 MR. LOCKE: Objection.</p> <p>24 THE WITNESS: So "precise" might be a --</p> <p>25 a term that matters, but -- but it can be a work</p>	<p style="text-align: right;">Page 452</p> <p>1 MS. BROWN: Objection to the form.</p> <p>2 MR. LOCKE: Objection.</p> <p>3 THE WITNESS: So I -- I looked -- for</p> <p>4 all the things that we talked about -- I don't</p> <p>5 know which ones we're talking about now in terms</p> <p>6 of the epidemiology studies.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q Correct.</p> <p>9 A So I've seen some that do and some that</p> <p>10 don't propose that. Some I think are -- and I'm</p> <p>11 paraphrasing -- but are sort of more along the</p> <p>12 lines of we just don't know or there's a lot more</p> <p>13 work needed, and -- and things of that sort.</p> <p>14 Q Are there a lot on the lines of</p> <p>15 migration of talc -- excuse me.</p> <p>16 Are there a lot of articles that you've</p> <p>17 reviewed where they have -- authors have stated</p> <p>18 that talc can migrate to the ovaries?</p> <p>19 A I wouldn't say --</p> <p>20 MS. BROWN: Objection.</p> <p>21 THE WITNESS: I wouldn't say a lot. And</p> <p>22 I haven't seen anything as strong as that FDA</p> <p>23 statement, you know, I mean, where -- where</p> <p>24 there's some, you know, certainty that is coupled</p> <p>25 with that kind of a statement.</p>
<p style="text-align: right;">Page 451</p> <p>1 in progress in the sense that you can have some</p> <p>2 information or no information or lots of</p> <p>3 information. So there can be, you know, quite a</p> <p>4 spectrum of information you would have about the</p> <p>5 plausibility.</p> <p>6 BY MS. PARFITT:</p> <p>7 Q I think what I'm asking is, does the</p> <p>8 mechanism of disease need to be proven in order to</p> <p>9 find causality?</p> <p>10 MS. BROWN: Objection to the form.</p> <p>11 THE WITNESS: I -- I think we keep doing</p> <p>12 this over and over, because this -- I think -- I</p> <p>13 think this is the same -- unless it's meant to be</p> <p>14 different, like I don't know how to answer that</p> <p>15 differently. It's -- you know, obviously it</p> <p>16 doesn't have to be proven, but it certainly is</p> <p>17 important. And when you have a very small</p> <p>18 estimated risk, then it becomes even more</p> <p>19 important.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Okay. Have you seen in the literature</p> <p>22 that you've reviewed numerous authors who have</p> <p>23 proposed a biologically plausible mechanism by</p> <p>24 which talcum powder products can cause ovarian</p> <p>25 cancer?</p>	<p style="text-align: right;">Page 453</p> <p>1 BY MS. PARFITT:</p> <p>2 Q But you've certainly seen where the</p> <p>3 authors have opined and discussed biologically</p> <p>4 plausible mechanism by -- mechanisms by which</p> <p>5 talcum powder products can cause ovarian cancer.</p> <p>6 MR. LOCKE: Objection.</p> <p>7 MS. BROWN: Objection. Continues to</p> <p>8 misstate his testimony.</p> <p>9 THE WITNESS: What's -- what's different</p> <p>10 about that than what I already answered?</p> <p>11 BY MS. PARFITT:</p> <p>12 Q Well, what I'm trying to get at is,</p> <p>13 whether or not you believe it or don't believe it,</p> <p>14 I'm simply trying to understand from you whether</p> <p>15 or not in your read of the scientific literature</p> <p>16 have you seen where authors who have actually</p> <p>17 studied this topic where they have determined and</p> <p>18 written in their reports that there are</p> <p>19 biologically plausible mechanisms by which talc</p> <p>20 can migrate to the ovaries?</p> <p>21 MR. LOCKE: Objection.</p> <p>22 MS. BROWN: No, objection. He's</p> <p>23 answered this a hundred times, and it's --</p> <p>24 BY MS. PARFITT:</p> <p>25 Q And if it's no, then it's no. If you've</p>

114 (Pages 450 to 453)

Gregory B. Diette, M.D.

Page 454	Page 456
<p>1 seen it, you've seen it. If you dispute it, you</p> <p>2 dispute it.</p> <p>3 A Well, it's -- it's none of those.</p> <p>4 But you just said reports. Does that --</p> <p>5 are we now talking about expert reports or are --</p> <p>6 Q No.</p> <p>7 A -- we still talking about --</p> <p>8 Q No, we're still talking --</p> <p>9 A Okay. We're talking about like</p> <p>10 peer-reviewed publications?</p> <p>11 Q That's right.</p> <p>12 A So I've seen a mixture, yeah. It's like</p> <p>13 when you look at the epi literature, I mean the --</p> <p>14 the way I read it is like -- is, you know, an</p> <p>15 epidemiologist is supposed to be able to get up to</p> <p>16 speed without becoming an expert in absolutely</p> <p>17 everything, right?</p> <p>18 So I already told you I'm not a cancer</p> <p>19 biologist, but I do count on the authors to set</p> <p>20 the stage with the introduction and then interpret</p> <p>21 their findings and the discussion and sort of take</p> <p>22 us at least partway towards there.</p> <p>23 So even the recent meta-analysis, if you</p> <p>24 look at Berge or Burge (phonetic), however you say</p> <p>25 that, and Penninkilampi, you know, they talk about</p>	<p>1 probably means one thing in the world in general.</p> <p>2 I think if you're talking about Rothman, yeah,</p> <p>3 Rothman has written about that --</p> <p>4 BY MS. PARFITT:</p> <p>5 Q Right.</p> <p>6 A -- and about it being simply a</p> <p>7 competition of sort of counting those that are</p> <p>8 significant and those that are not.</p> <p>9 I didn't see that. I think the way I</p> <p>10 described it I think was -- was the way I</p> <p>11 approached it, which said some of the information</p> <p>12 that's available is that some of the studies were</p> <p>13 statistically significant and some weren't. It's</p> <p>14 informative, but it's not literally the same as</p> <p>15 saying, I'm just going to count them up and stop</p> <p>16 there.</p> <p>17 Q Because that would be improper, correct?</p> <p>18 MS. BROWN: Objection.</p> <p>19 THE WITNESS: To only do that, yes.</p> <p>20 BY MS. PARFITT:</p> <p>21 Q Okay. All right. Let me ask a couple</p> <p>22 of question -- questions.</p> <p>23 What is the minimal level of exposure to</p> <p>24 cigarette smoke in terms of cigarette smoke at</p> <p>25 home that's necessary to cause lung cancer?</p>
Page 455	Page 457
<p>1 there -- there being uncertainty about the</p> <p>2 mechanism. So I'm just saying even as recently as</p> <p>3 the -- the very latest meta-analysis, there's</p> <p>4 uncertainty expressed.</p> <p>5 Q Do you see uncertainty being expressed</p> <p>6 by biologically plausible mechanisms?</p> <p>7 MS. BROWN: Objection.</p> <p>8 THE WITNESS: Well, I don't know if</p> <p>9 they're plausible or not. I mean that's the whole</p> <p>10 point, right? You know, I mean you can say</p> <p>11 something, but it doesn't make it true.</p> <p>12 BY MS. PARFITT:</p> <p>13 Q You reminded me of something. In your</p> <p>14 review of the various case-control studies, did</p> <p>15 you exercise a process known as vote counting?</p> <p>16 MS. BROWN: Objection.</p> <p>17 THE WITNESS: No.</p> <p>18 BY MS. PARFITT:</p> <p>19 Q You did not?</p> <p>20 A I did not.</p> <p>21 Q That would be improper to do so,</p> <p>22 correct?</p> <p>23 MS. BROWN: Objection.</p> <p>24 THE WITNESS: Well, if we're talking --</p> <p>25 so I guess, just to be clear, so vote counting</p>	<p>1 MS. BROWN: Form.</p> <p>2 THE WITNESS: I do not know.</p> <p>3 BY MS. PARFITT:</p> <p>4 Q Okay. What is the minimal level of</p> <p>5 exposure to asbestos fibers inhaled that is</p> <p>6 sufficient to cause ovarian cancer?</p> <p>7 MS. BROWN: Form.</p> <p>8 MR. LOCKE: Objection.</p> <p>9 THE WITNESS: We -- we did that before.</p> <p>10 I don't -- I don't have any more information than</p> <p>11 what I did, like meaning, you know, I have some --</p> <p>12 some guideposts like the -- the Whitnum 40</p> <p>13 fiber/cc years of -- of crocidolite, which did not</p> <p>14 seem to be adequate to cause it.</p> <p>15 And then, you know, when we looked at</p> <p>16 the IARC, I didn't -- even when you and I looked</p> <p>17 at it together, I didn't see information that</p> <p>18 talked about what dose would be required.</p> <p>19 BY MS. PARFITT:</p> <p>20 Q Okay. Same question. What's the</p> <p>21 minimal level of exposure to asbestos fibers</p> <p>22 inhaled that is sufficient to cause mesothelioma?</p> <p>23 MS. BROWN: Objection.</p> <p>24 MR. LOCKE: Objection.</p> <p>25 THE WITNESS: Pleural or peritoneal</p>

115 (Pages 454 to 457)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 458</p> <p>1 or --</p> <p>2 BY MS. PARFITT:</p> <p>3 Q Pleural.</p> <p>4 A So the -- so the amount for pleural</p> <p>5 mesothelioma is -- and did you say fiber type or</p> <p>6 you didn't mention fiber type?</p> <p>7 Q I didn't. I just said fibers.</p> <p>8 A Okay. So it would matter fiber type.</p> <p>9 If it's chrysotile predominant, then above 200 to</p> <p>10 400 fiber/cc years would be, you know, one</p> <p>11 estimate of the dose. If it's crocidolite, you</p> <p>12 know, you could divide that by 500. And if it's</p> <p>13 amosite, by a hundred, and other amphiboles, you</p> <p>14 know, somewhere in between those sort of ranges.</p> <p>15 And so, you know, I think for</p> <p>16 amphiboles, above like the single digit fiber/cc</p> <p>17 years, and for chrysotile, above the couple of</p> <p>18 like 200 to 400 fiber/cc years.</p> <p>19 Q Is it true that the dose-response curve</p> <p>20 for any genotoxic carcinogen intersects with zero?</p> <p>21 MS. BROWN: Objection to the form.</p> <p>22 THE WITNESS: Well, there's got to be a</p> <p>23 zero point if there's zero exposure, right? If</p> <p>24 there's literally zero exposure, then there can't</p> <p>25 be -- there can't be a signal from that zero.</p>	<p style="text-align: right;">Page 460</p> <p>1 Q Okay. You criticize the plaintiffs'</p> <p>2 experts for what you called a muted examination of</p> <p>3 the case-control studies that they reviewed.</p> <p>4 Do you remember saying that in your</p> <p>5 report?</p> <p>6 A I don't remember that word, but it's --</p> <p>7 it makes a lot of sense to me.</p> <p>8 Q Okay. Where in your port -- report did</p> <p>9 you set forth all of the limitations and</p> <p>10 weaknesses of the cohort studies of talcum --</p> <p>11 talcum powder products and asbestos -- and ovarian</p> <p>12 cancer?</p> <p>13 A Well, there's a bunch, right. So --</p> <p>14 Q Well, where did you --</p> <p>15 A I'm telling you.</p> <p>16 Q -- provide us in your report that</p> <p>17 information --</p> <p>18 A I'm telling you.</p> <p>19 MS. BROWN: Let him finish --</p> <p>20 THE WITNESS: I understand your</p> <p>21 question.</p> <p>22 MS. BROWN: -- and answer your question.</p> <p>23 THE WITNESS: So one of the criticisms,</p> <p>24 which I think is pretty profound, which is the</p> <p>25 lack of a validated measure of talcum powder</p>
<p style="text-align: right;">Page 459</p> <p>1 BY MS. PARFITT:</p> <p>2 Q What does the -- what does it mean if a</p> <p>3 dose-response curve intersects zero?</p> <p>4 MS. BROWN: Form.</p> <p>5 BY MS. PARFITT:</p> <p>6 Q What does that mean?</p> <p>7 A It's not a term that's familiar. I</p> <p>8 mean, it's just -- I'm not sure -- if you've got</p> <p>9 zero exposure, you can't have any outcome from</p> <p>10 that. So I -- I assume that's what we're talking</p> <p>11 about is just like a -- like a no exposure</p> <p>12 estimate.</p> <p>13 If you're talking about like -- the</p> <p>14 place I've seen people talk about it is like with</p> <p>15 low doses of things and what happens, you know,</p> <p>16 below the concentration or the level at which</p> <p>17 there's known effects, then what happens between</p> <p>18 there and zero. But if it's literally zero -- if</p> <p>19 there's literally zero exposure, it's got to be</p> <p>20 zero outcome.</p> <p>21 (Counsel conferring.)</p> <p>22 BY MS. PARFITT:</p> <p>23 Q Okay. You reviewed the cohort studies</p> <p>24 in this case, correct?</p> <p>25 A The three -- three cohort studies.</p>	<p style="text-align: right;">Page 461</p> <p>1 exposure that could have someone estimate whether</p> <p>2 or not somebody is exposed at all or whether or</p> <p>3 not there's a dose-response, and that applies to</p> <p>4 all the studies, right. So that's uniformly</p> <p>5 applied to whether they're case-control studies</p> <p>6 or -- or cohort studies.</p> <p>7 BY MS. PARFITT:</p> <p>8 Q That would be the exposure</p> <p>9 misclassification.</p> <p>10 MS. BROWN: Objection.</p> <p>11 THE WITNESS: No, no, no. So it would</p> <p>12 be -- you could misclassify it, but it -- but what</p> <p>13 I'm talking about is, that in order to measure an</p> <p>14 exposure, you need a valid measure of that</p> <p>15 exposure. That doesn't exist, or at least if it</p> <p>16 exists, it hasn't been employed in the -- in the</p> <p>17 published literature. And that applies to the</p> <p>18 cohort studies and the case controls.</p> <p>19 What I -- what I did was I tried to</p> <p>20 actually not denigrate any of the study designs.</p> <p>21 I thought that was appalling. You know, when you</p> <p>22 talk about where this came from, you know, to sort</p> <p>23 of single out the cohort studies repeatedly by</p> <p>24 the -- by the plaintiffs' expert and say, you</p> <p>25 know, This is a terrible design, or this is</p>

116 (Pages 458 to 461)

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 462</p> <p>1 terrible for whatever reason, it's extraordinary, 2 and it's -- to me it's unprecedented for -- for 3 epidemiologists or other healthcare professionals 4 to sort of look at cohort studies and find that 5 those are so awful, and that case-control studies 6 are suddenly so sturdy. It doesn't make any 7 sense.</p> <p>8 So -- so for me, like the task wasn't 9 really so much -- I wasn't trying to criticize 10 either form of the study, but just to point out 11 realistically that there are biases, that there 12 are confounding issues, and -- and things of 13 that -- that sort.</p> <p>14 BY MS. PARFITT:</p> <p>15 Q In your review of the literature for 16 purposes of your opinions today, did you see 17 evidence from any of the studies that you read 18 that there was a dose-response associated between 19 talcum powder products and ovarian cancer?</p> <p>20 A So in total, no. In a couple of 21 studies, there are purported dose-response 22 findings, right. So the latest Cramer study is an 23 example. There may have been another, but there 24 are so many studies that show absolutely the 25 opposite, meaning either flat dose-response,</p>	<p style="text-align: right;">Page 464</p> <p>1 Q Okay. So you would agree with me there 2 are studies in the peer-reviewed literature that 3 have demonstrated a dose-response between talcum 4 powder products and ovarian cancer?</p> <p>5 MS. BROWN: Objection --</p> <p>6 MR. LOCKE: Objection.</p> <p>7 MS. BROWN: -- to the form.</p> <p>8 MS. PARFITT: Let him answer, please.</p> <p>9 MS. BROWN: I get to object.</p> <p>10 THE WITNESS: I think just a couple.</p> <p>11 MS. PARFITT: Let's go off the record.</p> <p>12 THE VIDEOGRAPHER: The time is 5:53 p.m. 13 We're going off the record. 14 (Recess.) 15 THE VIDEOGRAPHER: The time is 5:58 p.m. 16 We're back on the record. 17 MR. HEASLIP: Can we go off for one 18 moment? I apologize. 19 THE VIDEOGRAPHER: The time is 5:58 p.m. 20 We're going back off the record. 21 (A discussion was held off the record.) 22 THE VIDEOGRAPHER: The time is 5:59 p.m. 23 We're back on the record. 24 CROSS-EXAMINATION 25 BY MR. FINCH:</p>
<p style="text-align: right;">Page 463</p> <p>1 upside down dose-response, zig-zaggy, haphazard 2 dose-response. So I would say looking at the 3 evidence in total, it's a mess. I mean it's 4 certainly not supportive.</p> <p>5 And I'll you the truth, if you go back 6 to -- like to 2000 -- and I know we're in a hurry, 7 so I will try to talk a little faster -- but the 8 Rothman -- the Rothman review, at least up until 9 2000, they -- they plotted out all the 10 dose-response they found, and they found an 11 inverse relationship overall, which is one of the 12 things they found to be inconsistent with there 13 being causation.</p> <p>14 So I think, you know, from 1982, when 15 the first case-control study was published, to 16 2000, at least when it's assessed by Rothman and 17 his colleagues, is actually upside down.</p> <p>18 Q What about Terry? Terry in 2013 19 reported a dose-response, did they not?</p> <p>20 MS. BROWN: Objection to the form.</p> <p>21 THE WITNESS: I don't remember what they 22 showed. I don't -- I don't doubt you, but I -- 23 but there's just -- there's a couple of studies 24 that have demonstrated that.</p> <p>25 BY MS. PARFITT:</p>	<p style="text-align: right;">Page 465</p> <p>1 Q Good afternoon, Dr. Diette. My name is 2 Nate Finch. You and I have met before, correct?</p> <p>3 A Yes.</p> <p>4 Q You were asked a question about the 5 dose-response curve to genotoxic carcinogens. Do 6 you recall that question?</p> <p>7 A I do.</p> <p>8 Q And your answer was something to the 9 effect of if the dose was zero, then it would be 10 an intersection of zero.</p> <p>11 Do you recall that answer?</p> <p>12 A Something like that.</p> <p>13 Q All right. I want you to assume that 14 we're talking about a dose-response curve where 15 there is a positive dose, not a dose of zero. 16 Your typical dose-response curve looks something 17 like this (indicating), right, with dose on the 18 X-axis and response on the Y-axis?</p> <p>19 A You can draw it that way.</p> <p>20 MS. MILLER: Is that a exhibit?</p> <p>21 MR. FINCH: You can mark it as an 22 exhibit. It's got somebody's notes on the back of 23 it, but...</p> <p>24 BY MR. FINCH:</p> <p>25 Q Isn't it true, Dr. Diette, that for a</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 466</p> <p>1 genotoxic carcinogen where there is a positive 2 dose, the dose-response curve always intersects 3 with zero? 4 MS. BROWN: Objection to form. 5 THE WITNESS: That's not something that 6 I say. I mean I don't -- people may say that, but 7 I -- I think when we're talking about -- like zero 8 is zero, right. So zero exposure means zero risk. 9 BY MR. FINCH: 10 Q I'm not -- I'm not talking about zero. 11 MS. BROWN: Wait, let him finish, 12 please. 13 THE WITNESS: Well, I know. That's what 14 I'm talking about when I -- when I hear that 15 question. 16 BY MR. FINCH: 17 Q All right. So if someone were to 18 testify when you're talking about a genotoxic 19 carcinogen where there is a positive exposure, 20 there -- the dose-response curve intersects with 21 zero, meaning that there -- isn't it true that 22 that means that there -- at any level of exposure, 23 there's an excess risk of cancer for a genotoxic 24 carcinogen? 25 MS. BROWN: Objection to the form.</p>	<p style="text-align: right;">Page 468</p> <p>1 about the sort of mechanical process of writing 2 your report. Do you remember that? 3 A I do. 4 Q And to be clear, Doctor, did you write 5 every substantive word of the expert report that 6 we've marked as an exhibit in this case? 7 A To the -- yes, everything substantive. 8 Q Did MSA or Medical Science Affiliates 9 make any substantive contributions to your expert 10 report in this proceeding? 11 A No. 12 Q You spoke a little bit earlier today 13 about some administrative support that you 14 received from MSA. Do you remember that? 15 A I do. 16 Q And tell us what you meant by 17 "administrative support." 18 A So by "administrative support," I meant, 19 you know, gathering -- like collating materials 20 for me, helping to -- to format the report, you 21 know, putting -- you know, putting the reference 22 citations in correctly. You know, creating the -- 23 the list of reliance documents at the end. You 24 know, things of that sort. And then -- and then 25 generating invoices.</p>
<p style="text-align: right;">Page 467</p> <p>1 THE WITNESS: So I don't know. That may 2 be part of some field that's not my field. But I 3 -- but in the fields that I work in, I recognize 4 that you need a certain amount of exposure in 5 order to cause a disease, including cancer. 6 BY MR. FINCH: 7 Q Okay. But you cannot dispute that 8 genotoxic carcinogens, the dose-response curve 9 intersects with zero. You haven't studied that 10 issue; is that correct? 11 MR. LOCKE: Objection. 12 MS. BROWN: Objection to the form. 13 THE VIDEOGRAPHER: Seven hours. 14 MS. BROWN: You're done. Wait. 15 THE WITNESS: So I mean, my answer is 16 the same as it was before. 17 MS. BROWN: I can ask from here. 18 (A discussion was held off the record.) 19 CROSS-EXAMINATION 20 BY MS. BROWN: 21 Q Good evening, Dr. Diette. 22 A Hi. 23 Q Just a couple of quick questions, and we 24 will get you on your way. 25 We had some discussion earlier today</p>	<p style="text-align: right;">Page 469</p> <p>1 I'm trying to think what else. 2 Whatever -- whatever I said earlier was the -- was 3 the full list, I think. 4 Q You also mentioned earlier today 5 receiving some editorial support from the folks at 6 MSA. Tell us what you meant by that. 7 A So to look for typos or -- I gave the 8 example of like where I had a really long 9 paragraph, and they broke it up with bullets to 10 make it look more readable, that sort of thing, 11 and -- and just making this actually have the 12 physical appearance that it does. 13 Q Did MSA provide anything other than 14 administrative formatting type support in 15 connection with your report in this case? 16 A No. 17 Q If someone were to suggest that the 18 opinions in your expert report are not entirely 19 your own, would that be the truth? 20 A I'm sorry. I was reading that going by, 21 and I didn't listen. 22 Q Sure. If someone were to suggest that 23 some of the opinions in your expert report are not 24 entirely your own, would that be the truth? 25 A No.</p>

Gregory B. Diette, M.D.

<p style="text-align: right;">Page 470</p> <p>1 MS. PARFITT: Objection.</p> <p>2 THE WITNESS: They're -- they're all my</p> <p>3 opinions.</p> <p>4 BY MS. BROWN:</p> <p>5 Q If someone were to suggest that MSA</p> <p>6 wrote some of the substantive pieces of your</p> <p>7 report, would that be the truth?</p> <p>8 MS. PARFITT: Objection.</p> <p>9 THE WITNESS: No.</p> <p>10 MS. BROWN: Thanks very much for your</p> <p>11 time, Dr. Diette. I have no further questions.</p> <p>12 MS. PARFITT: Anybody? No. Thank you.</p> <p>13 Dr. Diette, thank you very much.</p> <p>14 THE WITNESS: Thank you.</p> <p>15 MS. PARFITT: I appreciate it.</p> <p>16 THE VIDEOGRAPHER: The time is 6:04</p> <p>17 p.m., April 9th, 2019. Going off the record,</p> <p>18 completing the videotaped deposition.</p> <p>19 (Whereupon, the deposition of</p> <p>20 GREGORY B. DIETTE, M.D. was</p> <p>21 concluded at 6:04 p.m.)</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 472</p> <p>1 INSTRUCTIONS TO WITNESS</p> <p>2 Please read your deposition over carefully and</p> <p>3 make any necessary corrections. You should state</p> <p>4 the reason in the appropriate space on the errata</p> <p>5 sheet for any corrections that are made.</p> <p>6 After doing so, please sign the errata sheet</p> <p>7 and date it.</p> <p>8 You are signing same subject to the changes</p> <p>9 you have noted on the errata sheet, which will be</p> <p>10 attached to your deposition. It is imperative</p> <p>11 that you return the original errata sheet to the</p> <p>12 deposing attorney within thirty (30) days of</p> <p>13 receipt of the deposition transcript by you. If</p> <p>14 you fail to do so, the deposition transcript may</p> <p>15 be deemed to be accurate and may be used in court.</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 471</p> <p>1 CERTIFICATE OF CERTIFIED SHORTHAND REPORTER</p> <p>2 The undersigned Certified Shorthand Reporter</p> <p>3 does hereby certify:</p> <p>4 That the foregoing proceeding was taken before</p> <p>5 me at the time and place therein set forth, at</p> <p>6 which time the witness was duly sworn; That the</p> <p>7 testimony of the witness and all objections made</p> <p>8 at the time of the examination were recorded</p> <p>9 stenographically by me and were thereafter</p> <p>10 transcribed, said transcript being a true and</p> <p>11 correct copy of my shorthand notes thereof; That</p> <p>12 the dismantling of the original transcript will</p> <p>13 void the reporter's certificate.</p> <p>14 In witness thereof, I have subscribed my name</p> <p>15 this date: April 10, 2019.</p> <p>16</p> <p>17 _____</p> <p>18 LESLIE A. TODD, CSR, RPR</p> <p>19 Certificate No. 5129</p> <p>20 (The foregoing certification of</p> <p>21 this transcript does not apply to any</p> <p>22 reproduction of the same by any means,</p> <p>23 unless under the direct control and/or</p> <p>24 supervision of the certifying reporter.)</p> <p>25</p>	<p style="text-align: right;">Page 473</p> <p>1 -----</p> <p>2 E R R A T A</p> <p>3 -----</p> <p>4 PAGE LINE CHANGE</p> <p>5 _____</p> <p>6 REASON: _____</p> <p>7 _____</p> <p>8 REASON: _____</p> <p>9 _____</p> <p>10 REASON: _____</p> <p>11 _____</p> <p>12 REASON: _____</p> <p>13 _____</p> <p>14 REASON: _____</p> <p>15 _____</p> <p>16 REASON: _____</p> <p>17 _____</p> <p>18 REASON: _____</p> <p>19 _____</p> <p>20 REASON: _____</p> <p>21 _____</p> <p>22 REASON: _____</p> <p>23 _____</p> <p>24 REASON: _____</p> <p>25 _____</p>

Gregory B. Diette, M.D.

Page 474

1 ACKNOWLEDGMENT OF DEPONENT
2 I, _____, do hereby
3 certify that I have read the foregoing pages, and
4 that the same is a correct transcription of the
5 answers given by me to the questions therein
6 propounded, except for the corrections or changes
7 in form or substance, if any, noted in the
8 attached Errata Sheet.
9

10 _____
11 GREGORY B. DIETTE, M.D. DATE
12

13
14 Subscribed and sworn to
15 before me this
16 _____ day of _____, 20____.
17 My commission expires: _____
18 _____

19 Notary Public
20
21
22
23
24
25

A	accessory 75:25 76:13	administer 13:20	162:19 163:22 164:10 165:6	278:9 282:19 283:6 287:2
a.m 1:18 13:7 19:13 44:15,18 89:7 151:17,20	accompany 159:19	administering 2:18	165:21 166:25 168:3,18	291:11 292:24 302:17 304:2
AACES 11:11	account 77:1 255:8 383:20	Administration 228:1 434:11	170:24 179:7 179:14 188:21	304:20,23 306:5 321:5,13
abandon 309:24 312:8	accounts 36:6 36:14	administrative 91:17 93:9 154:19 158:6	189:7 190:16 190:19,20 468:8	321:16 322:16 322:22 331:3 361:22 362:6
abandoning 201:13 306:24 309:5	accurate 14:24 100:1 139:12 387:14,16 434:18 472:15	178:17 183:2,6 468:13,17,18 469:14	Affiliates' 155:18 156:5	362:21 363:10 367:22,25
abide 38:24	accurately 73:19 97:20 274:19	admonishing 38:6,7 113:10	Affiliations 7:15	368:14 400:4
ability 378:21	acknowledged 182:7	adult 403:22	affirmative 415:13	401:21 411:8 413:7 414:24
able 36:17 69:9 85:16 140:19 158:1 207:21 216:13 300:17 319:14 372:8 391:1 410:12 454:15	ACKNOWLEDGE... 474:1	adults 374:20 389:19	afforded 179:14	416:3 417:23 418:1,2,3
abnormality 372:20	active 408:16	advance 88:17	afield 270:12	420:8 432:12
absolute 361:9	activities 10:14 205:8	advanced 45:20 45:25	afternoon 204:25 205:1 465:1	433:12 434:17 434:20,24 445:2,10,25 464:1
absolutely 62:13 65:23 84:8 86:22 387:14 387:16 415:14 454:16 462:24	actual 172:4 203:21 264:19	advertise 189:4 188:21	age 249:15	agreeable 46:24 293:4 303:21 305:3 306:11 319:9
absorbed 405:17	ADAM 3:5	advertisement 188:15	agent 285:20 439:13	agreement 31:21 32:6 33:18 153:22 154:4 187:11
absorption 266:21	add 24:21 91:25 96:16 97:7 178:1,19 179:22 234:20	advised 441:15	ago 51:2 108:17 117:10 152:20 153:10 189:18 231:1 244:17 418:4,9 445:7 445:7	agreements 33:2 156:8
abstract 282:9 365:2,10 366:18 369:22 428:5	added 347:5	affidavit 133:12 135:14 197:12 197:25 198:19	agree 34:23 35:3 45:24 46:20 47:12 84:6,9 84:20 87:16,21 88:8 107:23 112:21 183:5 213:2 216:4,4 216:13,24,25 217:8,14,15 219:21 222:1,6 225:25 226:3,9 226:15 233:25 235:3 236:23 260:3,3,8 272:13 274:25 275:24 276:18 276:19,21,25 277:1,2,2,12	Ah 437:24 ahead 16:6 23:22 24:17 25:22 26:20,21 58:7 63:1 162:8,9 192:22 212:8 216:2 218:14 270:5 275:6 292:10 297:12 304:11 353:22,23 355:2,11 365:18
Abstracts 8:12	adding 40:4	affidavits 130:7 131:2,14 134:14 135:1 170:18 196:25 197:6 198:18		air 102:13 107:21 371:17 373:21 405:20
absurd 270:15 271:2	addition 134:13 183:10 211:19	affiliate 187:19 187:23		
academic 93:18 149:11	additional 25:16 29:11 31:12 92:13 178:10	affiliated 155:15		
accepted 92:1 368:3	additions 91:23 139:15	Affiliates 24:20 25:18 31:18,21 31:25 32:7 33:4,5,20 151:23 152:6 152:10,18,23 153:15 154:8 155:10,16 157:4,8 158:10 159:8,21 162:5		
accepts 291:9 292:20	address 31:2 124:21 142:11 142:15,19			
access 10:13 26:15 285:17	addressing 134:15			
	adequacy 57:1			
	adequate 457:14			
	adhere 317:2			
	adjusted 249:22			

airborne 373:14 373:15 406:7	amphiboles 458:13,16	122:3 124:2 125:1 135:23	220:9,18 224:3 228:21 232:7	296:23 297:22 305:10
airway 97:16 101:9	Amrhein 9:5,14	136:13 137:10 139:25 140:24	251:6 261:17 308:3 385:5	appears 26:3 123:24 282:14
al 9:14 271:17	analogous 371:11	141:18 144:5 146:17 150:25	423:1 429:10 445:18 447:19	407:5,19
alert 47:19	analyses 77:12 336:8,15	156:15 159:4 161:10 164:13	453:10,23 answering 33:9	appendices 265:10
Ali 19:15 27:9	analysis 76:1,15 145:23 148:22	164:15 165:13 166:20 167:6	61:19 203:4 244:12 335:19	Appendix 7:8,19 66:4 121:4
all-cause 10:9 366:3 367:3	149:5 251:12 252:16,24,25	168:13 169:8 173:22 176:16	337:19 404:14 answers 14:23	application 266:22 270:25
389:18	267:24 268:15 268:23 269:16	176:17,19 177:2,10	37:13 106:24 193:2 474:5	332:21,25 416:8 449:24
allegation 109:21	270:14 271:1,4 333:8,9 334:19	187:13 191:22 191:23 192:21	anybody 15:12 56:24 153:6	applications 420:22,25
allegations 109:2,15,25	335:22,24 336:10,17	195:6 198:8 207:22 210:9	164:19 192:19 196:11 266:10	applied 149:13 250:18 412:23
110:10	342:14 361:3 analyzing 425:4	218:8 220:10 249:18 268:19	266:13 311:22 313:24 340:12	435:24 461:5
Allen 309:7	and/or 135:13 471:23	274:18,20,23 274:24 276:6	437:6 470:12 anymore 29:24	applies 461:3,17 apply 74:7 401:2
allergen's 107:25	angles 200:25 animal 252:6	276:10,10 288:4,4 304:5	30:17 153:1 294:23	437:9 471:21 applying 362:13
allergens 102:15 102:19,23	253:3 285:8 448:14,22	310:22 319:22 326:13 332:4	anyway 49:8 79:4 305:1	449:18 appointment
103:7 107:22	450:3,4 animals 254:7	336:3 337:22 338:3,10	317:6 372:6 apart 18:16	93:19 97:1,3 100:20
ALLISON 4:17	254:12 449:23 449:23 450:2	346:22 371:3 372:6,8 374:13	apologize 66:1 202:17 284:22	appreciate 40:11 67:24
allowed 62:11 166:5	Ann 235:22 Anne 2:16 8:5	407:1 419:11 421:2 424:20	312:12 378:3 378:16 394:17	88:25 114:10 114:11 140:13
Almighty 231:10	annoy 53:9 327:4	424:23,25 436:1 450:4	426:21,23 464:18	183:10 184:3 190:13 251:1
alter 76:1,14	answer 23:22 24:11 26:24	451:14 460:22 464:8 465:8,11	appalling 461:21	327:7 345:3,15 349:6 355:12
ambient 370:18 371:17	29:6 32:22 33:15,18,21	467:15 answerable	apparently 257:14 312:12	381:13 400:10 411:7 470:15
America 11:24 49:20	35:17 37:18,23 41:17 55:21	90:11 answered 35:8	391:10 appear 31:15	approach 146:20 241:5
American 9:9 11:10 94:20	62:12,18,23 67:11 68:6,7	57:14 68:12 74:25 117:21	147:7 172:4 232:1 313:4	245:12 250:23 319:25 343:7
239:4 295:6,18	73:12,15 78:24 79:7 80:20	127:22 146:13 147:24 150:15	appearance 469:12	343:14 444:23 approached
296:24 298:12	82:18 83:18 84:8,13 93:16	161:10 184:12 210:8 217:21	appearances 4:1 5:1 13:18	456:11 appropriate
301:2 308:17	106:11 117:22	218:7 219:1	appeared	39:9 173:22 253:25 339:14
308:19 309:4 387:7				450:2 472:4
amosite 458:13				
amount 23:14 23:15 40:8				
90:7,19 176:4 178:19 179:23				
180:1 280:25 383:13 458:4				
467:4 amounts 282:15				
285:25				

appropriately 287:16	258:21 280:17 281:23 282:6	78:17 79:18,25 79:25 80:9	122:6 186:19 387:11 388:6	57:1,2 59:16 64:16 68:17
approximately 36:20,22 45:21 46:2 121:10,15 213:25	296:9 297:22 297:24 298:6 304:5 305:9 306:17 309:4	84:6,11,17,22 87:18,25 89:14 89:17,21 90:13 90:18,19	asbestos/meso- 207:10 asbestosis 122:10	77:19 83:16 109:10 132:20 135:21 136:11 136:15 146:6
April 1:17 11:22 13:6 121:15 175:9 229:10 439:3 470:17 471:15	309:15,22 317:16,21 328:5 336:22 343:20 369:9 373:25 419:14 424:16,19	120:16 121:21 122:5,21,24 123:7,14,22,24 125:22,24 126:5,20 127:5 127:20,25 128:14,20	ascend 417:17 418:5 ascertain 406:18 ASHCRAFT 3:6	148:23 163:10 164:15 191:5 192:24 193:3 195:16 201:1 205:23 221:4
arbitrary 251:19 302:14	426:3 427:9,21 428:1 439:25 442:13,20,25 444:16 445:6	136:16,19,23 142:20 147:17 148:13 187:15 201:24 203:16	Ashton 11:25 438:9 aside 44:3 134:25 206:4 208:23 231:10 285:23 286:15	235:10 238:14 246:13 252:11 263:6 299:1 304:16 329:14 336:15 337:10 400:4 403:10
area 51:17 59:4 75:7 128:20 151:15 184:10 190:17 203:1 214:24 216:21 217:10 218:3 219:8 220:12 221:6 236:15 237:16 260:23 276:1 279:2 280:4 288:8 331:14 430:3	articles 28:2,9 28:11,13,13,17 28:18,18 29:7 30:5,7,10 31:4 31:11 37:11 92:13,16 122:13 149:9 240:15,21 299:5,11 309:10,11 310:14 347:13 364:21 425:24 433:18 435:16 436:12,20 437:1 449:3 452:16	214:20 215:7 215:10 225:24 226:8,14 241:2 241:4,9 259:23 259:24 261:23 262:10 263:11 281:6,13,24 282:12,13 283:9,19 284:8 284:9,13 285:12,22,25 286:9 382:13 383:2,10,14 384:5,14,17 385:13,21 386:10 387:6 387:10 388:12 388:25 389:4 389:20 391:2 391:17,22 392:7 394:1,24 395:2 397:17 399:14,17,17 400:20 401:2 401:21,22,25 402:7 457:5,21 460:11	asked 19:21 20:20 21:11 23:24 27:22,23 32:13 35:7 49:23,25 55:21 55:25 57:10,17 57:21 74:24 106:11,13 112:17 117:21 127:21 147:23 148:1 150:15 155:6 181:16 181:25 184:20 184:21 185:7 187:2 193:12 195:9 196:16 199:13 200:5 200:14 210:9 218:7 220:18 224:2 228:21 232:7 251:5 261:17 262:6 262:10 275:18 276:9 308:3 377:24 422:25 429:10 445:16 445:17 447:18 465:4	404:14 409:16 422:7 430:24 451:7 aspect 355:25 356:2 aspects 256:24 aspirin 421:17 421:20,21 assemble 244:20 assert 33:12 asserted 33:9 asserting 33:13 33:15 assess 266:20 assessed 463:16 assessing 239:10 assessment 8:11 11:18 144:8 256:9 264:23 265:3,19 267:6 268:11 272:17 273:20,24 274:12 275:25 277:22 427:11
areas 19:3 80:15 100:22 203:14 356:18	articulate 145:21 articulating 88:11 288:12 asbestiform 72:17,21 73:5 73:23,24 74:5 401:4,9 asbestos 8:16 11:5 41:14,20 64:25 72:6,23 73:20,21 74:1 74:8 75:24 76:12 77:1,16 77:22 78:4,11	283:9,19 284:8 284:9,13 285:12,22,25 286:9 382:13 383:2,10,14 384:5,14,17 385:13,21 386:10 387:6 387:10 388:12 388:25 389:4 389:20 391:2 391:17,22 392:7 394:1,24 395:2 397:17 399:14,17,17 400:20 401:2 401:21,22,25 402:7 457:5,21 460:11 asbestos- 121:21 123:22 asbestos-related	112:17 117:21 127:21 147:23 148:1 150:15 155:6 181:16 181:25 184:20 184:21 185:7 187:2 193:12 195:9 196:16 199:13 200:5 200:14 210:9 218:7 220:18 224:2 228:21 232:7 251:5 261:17 262:6 262:10 275:18 276:9 308:3 377:24 422:25 429:10 445:16 445:17 447:18 465:4 asking 37:12 42:11 53:2	aspect 355:25 356:2 aspects 256:24 aspirin 421:17 421:20,21 assemble 244:20 assert 33:12 asserted 33:9 asserting 33:13 33:15 assess 266:20 assessed 463:16 assessing 239:10 assessment 8:11 11:18 144:8 256:9 264:23 265:3,19 267:6 268:11 272:17 273:20,24 274:12 275:25 277:22 427:11 assistance 159:18 178:11 179:7 250:11 assistant 93:10 250:15 assistants 91:17
Armhein 317:25 ARPS 5:10 arrange 162:15 arrangement 154:7 arranging 162:13 arrive 222:23 arrived 105:7 Arsenic 10:23 393:16 article 6:23 8:16 8:22 9:4,7 10:4 10:9 11:8,12 11:15 12:4 29:7 42:18 43:19 45:7,13 122:9 148:23 149:6,18 257:4				

assisting 187:2	asthma 48:17	Australia 388:3	295:15 296:2	295:19 305:10
assists 23:17	96:9 97:17	author 10:13	298:12,18	313:16 320:17
associate 7:14	100:23 102:12	224:9 225:8	306:22 310:11	320:22 325:11
94:5,12	103:3 104:17	253:6 290:14	367:13 385:17	338:17 351:22
associated 10:10	107:2,8,15	317:20 369:9	416:9	363:18 377:13
10:15 359:3	143:2 370:24	370:14 427:15	awareness 63:25	378:5 392:19
366:3 379:18	371:1 372:24	authored 290:18	231:23	396:18 400:4
380:22 389:4	372:25 373:12	authors 45:19	awful 70:7 237:5	400:19 426:20
428:6 462:18	373:15,20	240:13 245:15	343:10 462:5	435:25 441:10
association 11:8	374:8,18 375:1	247:12 272:9	awkward	441:14 442:14
127:10,19	375:19 376:7	290:6 365:3	116:23	446:17 447:14
148:17 271:20	Atkinson 397:23	370:12 413:7		463:5 464:16
273:15 278:3	attach 351:19	414:14 424:12	B	464:20,23
278:15 295:7	attached 6:9 7:2	425:20 430:16	B 1:15 2:1 6:2,8	465:22
295:18 302:12	8:2 9:2 10:2	448:6,25	7:1,9,14,20 8:1	background
305:20 322:17	11:2 12:2 26:1	451:22 452:17	9:1 10:1 11:1	90:18 100:15
352:25 361:23	42:5,14 43:7	453:3,16	12:1 13:22	175:14 255:10
362:3,4,7,22	298:16 308:23	454:19	66:4 470:20	284:9
362:23 384:7	439:25 442:14	available 49:4	474:11	backgrounds
394:1,23 402:7	472:10 474:8	49:15 212:18	baby 7:4 49:19	175:11 288:20
414:16 417:11	attaches 309:14	241:15 257:25	50:19 51:7,15	bad 277:6 414:5
422:23 423:8	attachment	258:2 271:21	52:9 53:4,13	450:15
445:22	18:12	271:23 272:10	53:13,25 54:1	baked 77:15
associations	attachments	277:18 278:5	54:12 56:16	146:15
236:19 368:1	18:15,21	278:17 279:24	58:18,23 74:15	balanced 217:4
assume 14:21	attack 107:9	293:13 322:13	87:17 381:19	237:4 238:4
21:13,18 70:23	attempting	383:22 384:4	385:12 413:9	343:7,14
71:4 76:1	274:2	456:12	back 14:9 16:22	Baltimore 2:5
78:16 79:16	attend 104:8,23	Avenue 3:21	19:14,16 27:19	10:17 13:9
80:8 132:25	105:1 232:12	5:11	39:8 44:19	Bank 3:22
135:21 147:4	232:15 261:5,8	average 47:14	50:19 52:22	Barnard 21:23
191:10 222:13	261:12,22	avoid 51:17	54:10,17 56:15	22:9
234:8 235:10	attention 14:19	54:19,20	57:4,13 58:3	base 302:11
242:2 246:4	45:13 83:9	award 92:3	70:8 77:24	356:20
288:2,18 295:5	100:6 121:3	aware 15:9	85:25 86:14,18	based 59:6
370:4 399:19	139:20 236:4	22:23 36:5	89:7 93:12	212:16 285:15
419:7 459:10	256:5 271:10	38:14 41:21	106:23 114:12	287:3 303:25
465:13	282:9 284:15	50:12,15 63:21	117:2,16 139:9	304:22 316:11
assuming 86:25	290:22 298:16	63:22 64:22	140:9,13	317:5 319:19
119:2 205:22	378:14 379:7	65:8 71:10,24	144:21 149:3	326:12 339:21
233:16 240:14	393:19 394:8	75:3,19 81:19	151:20 163:8	346:8 356:17
295:4 450:2	400:18 414:11	110:7 113:22	166:23 185:7	367:16,20
assumption 78:8	416:23	168:16 188:20	197:2 204:23	375:25 382:7
78:12 234:23	attorney 27:4,7	189:3 196:13	227:23 229:15	386:12 394:25
assurance 386:7	27:7 472:12	197:1,5 198:17	230:25 242:3	405:2 406:12
asterisk 332:20	attorneys 49:18	231:11,17	261:13 280:14	406:13 415:19
334:12 355:6	84:3	232:13 264:20	286:16 291:20	422:7 438:18

450:4	226:4,7 227:14	179:22,25	bits 287:1	147:5,14
bases 210:4	231:12 243:6	192:9,12,15	blackened 161:17	239:11,21,24
211:22,24	255:18 263:17	binder 164:25	180:3	268:11,15,23
238:11 242:25	306:18 318:9	164:25	blank 355:16	269:9,16
247:23 399:16	325:5 370:23	bio 151:10	blocks 285:17	270:14 271:1,4
basic 344:20	370:24 378:5	biologic 256:24	blog 312:14	362:22 419:8
388:24	428:13 432:22	272:25 273:4	blood 404:25	447:22
basically 105:4	442:2 453:13	433:20	405:25	brand 303:6
180:1 212:24	453:13	biological 384:6	Bloomberg	brands 381:25
352:18,22	belong 145:21	418:25 419:4	100:21 101:20	382:7,8 383:20
358:19 388:24	174:19	445:14 446:16	101:25	break 19:17
401:20 449:13	beneficial	446:19 447:17	blowing 44:7	62:9 77:11
basis 243:16	309:14	448:7 449:1	blue 389:19	88:22 133:6
253:16 288:4	Berge 237:25	biologically	board 94:16	151:10 158:7
345:20 381:3	238:2 454:24	89:22 384:6,20	bodies 209:2	164:2 178:15
392:7	best 37:13 38:5	385:22 414:15	239:7	181:23 204:10
Bates 8:17 9:21	50:17 104:3	415:22 416:6	body 11:9	204:10,12
Baylen 3:15	108:19 159:5	418:16 420:10	211:12,15	217:16 280:7
Beach 4:6	184:12 322:14	421:4 422:10	228:7,12 246:7	280:17 320:16
bear 65:25	333:15,16,18	424:13 425:22	412:18 417:17	320:17,25
122:8 181:25	444:13	432:10 450:7	434:12	377:4,5 426:10
bearing 123:16	better 93:15	450:20 451:23	boils 306:13	breathing 54:20
becoming	161:10 164:13	453:3,19 455:6	bold 174:18	breeze 44:7
454:16	180:11 353:16	biologist 253:20	book 290:17	Brief 251:24
Bedrooms 10:16	386:25 405:5	253:20,24	292:9	briefly 19:2
Beg 76:19	beyond 8:23	254:16,21	bottle 7:4 51:7	229:15
325:16 437:22	9:10 167:17,18	255:1,6,16	51:12 52:8,22	bring 16:24
beginning	296:25 308:18	454:19	52:25 53:3	27:23 34:7,9
177:17	309:3,22	biology 175:14	bottles 49:19	34:10
begun 102:20	bias 239:17,22	biomarker	50:1	bringing 100:6
behalf 3:3 4:16	biases 462:11	405:3	bottom 54:22	broad 48:15
5:15 55:17	BIDDLE 5:4	biostatistician	76:8 96:25	64:7 303:12,19
136:16 158:5	big 195:21	293:22,23	172:4 211:10	306:8 402:25
behavior 264:2	378:10 379:3	Biostatistics	256:7 284:16	407:1
264:3	bigger 306:12	314:12	284:17 344:25	broader 95:24
belief 59:1	bill 11:25 25:4,7	bit 24:24 27:4	350:15 393:20	broadest 415:2
395:20	25:10,13	59:21 73:12	396:4 444:17	broadly 147:11
believable	158:18,22,25	77:25 115:6	bought 54:5,5	broke 469:9
390:15	159:11,11,14	121:1 158:8	bounds 337:3	broken 332:23
believe 15:5	159:21 161:23	186:1 205:3	340:25	346:18 403:23
22:17 27:14	178:1,16,16,17	230:11 238:7	Bowman 311:7	bronchoscopy
31:17 43:14	178:22 179:4	241:23 245:12	313:13,14	123:12
56:3 82:7,16	438:9 439:2	314:18 341:13	Bowman's	brought 34:6
121:4,5 139:13	billed 40:3,6	352:24 360:19	296:4,6	169:25
177:16 209:23	159:22 160:1	370:24 376:21	Bradford 145:6	Brown 4:17 6:5
210:25 215:6	161:13	377:25 399:21	145:10,15,23	15:18 16:3,6
219:16 225:22	bills 25:2 158:10	407:16 468:12	146:2,11,18,20	18:4 19:7,15

Gregory B. Diette, M.D.

Page 480

19:16 20:22	103:18,21	167:4 168:19	232:7,17 233:1	314:10,25
21:17 22:7	104:2 105:10	169:4,7,13,20	233:4,12,15	315:5 318:13
23:19,22 24:10	106:6,22 107:4	170:15 171:16	234:2,17,22	319:19 321:10
24:14,17 26:9	107:16 108:8	172:11 173:18	235:5,7 236:25	321:21 322:9
27:11 28:21	108:23 109:4,9	174:6,10 175:5	244:2 245:25	322:21 323:21
29:1 31:6,22	109:18 110:1	175:12 176:2	246:10 247:24	324:22 325:2
32:8,13 33:6	110:12,15,24	176:15,22	248:7,17,23	326:3,6,10,17
33:14,23 35:7	111:5,11,19,23	177:9 178:12	249:6,11,17,24	326:23,25
35:17,25 36:24	112:5,13,24	178:24 179:8	250:6,21 251:5	329:12,17,20
37:14,17,20	113:2,9,12,14	179:17 180:5	254:17 255:2	329:25 330:4
38:1,8,11,14	113:18,22	180:25 181:9	255:15,22	330:22 331:4
38:18,21,23	114:1,13,16,20	182:18 183:1,7	256:1,17 258:4	331:18,22
39:1,6,11,19	115:1,4,13,25	184:4,18	258:14,25	332:1,4,7
40:16 41:15	117:11,20	186:10 187:10	259:8,10 260:5	333:19 334:10
42:8,19,25	118:1,25 119:9	187:20 188:5	260:10,25	334:20 335:5,9
43:12,20 44:13	120:17 123:25	188:11,23	261:2,16,24	335:12,16
45:5 47:6,22	124:23 125:8	189:2,21 190:8	262:19,24	336:2,21
48:11 49:5,21	125:14 126:21	190:22 191:21	263:20,24	337:11,15,19
50:4,21,24	127:13,21	192:4,10,12,17	264:4 265:2,20	337:22 338:2,5
51:9,19 52:23	128:21 129:9	192:20 193:1,5	266:1 267:18	338:8 339:4,17
54:2,14,25	129:15,18	193:20 194:1	268:2,12,18	339:25 340:6
55:8,16 56:2,8	130:2,11,15	194:11 195:5	270:2,5 271:7	340:11 342:18
56:19 57:14,23	131:5,11,17	195:14,18	272:2,16	343:18 345:7
58:14 59:5,12	132:12 133:10	196:2,7,10	273:23 274:1	345:11,22
60:4,17 61:4	134:21 135:3	197:13,17	274:17 275:4	346:8,13,17,20
61:13,18 62:4	135:16 136:10	198:7,21 199:3	275:13,15	346:25 347:12
62:10,21 63:24	137:9,22 139:5	199:16,18	276:3,13,16	348:5 349:11
64:6,9,14 65:1	140:5,11,23	201:12,15	277:20 278:7	350:14,19,21
65:12,19 66:18	141:13,18	202:5,9 203:3	278:11 279:8	351:3 352:3,10
67:15 68:11	143:3,6,20	203:7 204:9	279:13 280:3,6	353:11 354:4
69:14,20 70:22	144:1,4,20	205:10,17	281:8,15	354:16 356:3
72:8,19 73:7	145:7,16	206:10,19	282:21,24	356:25 357:13
73:15,18 74:13	146:13,24	207:18 208:20	283:4 286:10	358:8 360:13
74:17,24 75:8	147:8,18,23	209:3,9,20	287:6,25 288:3	361:24 362:10
75:10,17 76:18	148:18,25	210:11,17	288:9 289:2,4	362:25 363:13
76:20 78:20	149:15,23	215:16 216:10	289:8,13	367:8 368:19
79:2,21 80:16	150:15,21	217:21,25	290:23 291:13	371:19 372:1,4
80:24 82:1,11	151:6 152:11	218:6,12,15,19	292:1,4 295:23	372:14 373:3
82:17,22 83:2	153:17 154:10	218:23 219:11	298:20,24	373:17,22
83:13,21 85:3	155:1 156:6,16	220:17 221:19	299:2,12,21	374:9 375:8,10
85:9,14,20	156:19,24	222:8,25 223:7	300:1,6,12,15	375:14,20
86:2,11,24	157:10 158:11	223:24 224:1	301:18 303:1	376:16 378:18
87:1,8 88:5,7	158:14 159:3	225:2,17 226:2	304:3,8,12,17	380:4,11,24
90:1,15 95:11	159:13,23	227:12 228:8	304:25 306:6	381:3,20 382:2
96:17 97:22	160:7,9,16,19	228:13,21	307:1,7 308:3	382:16 383:6
98:7,11,13,15	160:23 161:21	229:22 230:19	310:5,8,18	384:9,22,25
99:6,10,15	166:1,4,9,11	231:3,19 232:3	312:14,18	385:5,8,15

389:9 390:1,20	453:22 455:7	162:14,15	41:14,21 45:8	220:13 221:7
391:4,19,24	455:16,23	188:11 218:15	45:9,20 46:1	225:5,13
394:12 396:8	456:18 457:1,7	218:17,20	46:23 51:18	226:12 228:17
396:15 397:8	457:23 458:21	314:19 337:16	55:7,15 59:10	233:23 234:15
399:4,23	459:4 460:19	337:23 338:9	59:18 60:3,15	234:21 236:17
400:14 401:10	460:22 461:10	338:11,12	61:3 62:3 63:8	237:19 240:16
401:13,16	463:20 464:5,7	349:5 353:3,4	63:12,18 75:6	240:24,25
402:10,18	464:9 466:4,11	443:9	76:3,14 79:11	241:5,9 248:5
403:8 405:8,12	466:25 467:12	call-in 97:3	79:15 89:24	250:4 253:20
406:19,21	467:14,17,20	called 31:17	90:14,20	253:23 254:14
407:10 408:4	470:4,10	55:2 93:22	104:24 109:22	254:16,21,25
408:23 409:13	Brown's 18:8	95:7 118:20	111:3,10	255:6 263:16
410:5,8,19	55:20	146:20 152:22	115:24 116:7	271:20 272:15
411:1,13,18	Bruce 7:13 16:8	186:2 244:14	117:1,4,19	273:22 274:15
412:1,19	built 323:15	290:18 296:25	118:10,21	275:2 276:2
413:14,25	bulk 240:20	361:3,5 460:2	119:3,7 122:7	278:4,23 279:3
414:4 416:13	bullet 303:23	calling 306:16	122:8,19,21,24	285:18,21
417:25 418:19	bulleted 181:21	calls 60:18 75:10	123:6,8,13,14	359:4 364:1,11
419:6,15	bullets 469:9	110:15 158:14	123:18,19,23	365:5,16 368:3
420:13,18	bunch 70:13	178:12,24	124:18,22	368:18 372:4
421:6,14	91:25 253:2	186:10 188:6	125:3,7,13	376:15 378:1
422:14,25	369:5 376:9	191:6 229:23	126:5,10,15	379:11,17
423:4,11	435:25 460:13	230:20 231:4	127:12,20	380:3,21 384:8
424:15,21	bundle 86:16	235:8 261:2	129:7,13 130:1	384:21 385:24
425:23 426:2	Burden 8:17	309:4 430:8	131:1,14 132:8	386:11,19
427:25 428:3	281:25	435:5	134:10,16,19	387:6 388:7,25
428:18,25	Burge 454:24	camera 19:19	135:6,15 136:8	389:5,8,19
429:14,21	business 24:21	113:16 378:17	136:17,20,21	391:3,11,17,23
430:1,7,12,20	178:19 191:11	cameras 19:17	137:21 138:8	392:8 394:2,24
431:10,13	193:11 266:14	Canada 8:14,14	140:22 142:12	395:13,23
432:5,14	buy 50:9	264:22 265:17	147:22 148:17	397:17,18
433:13 434:3		266:5,11,18	149:22 150:13	398:1,1,2,2,10
434:21 435:5	C	267:6,15	150:20 151:4	398:11,14,15
435:19 436:15	C 3:1 6:1 7:8	268:10 272:13	163:3,7,14,19	398:23,24
436:17 437:3	10:25 13:1	273:20 274:12	164:12 165:25	399:11,11,15
438:11,16	121:4	275:25 278:10	167:3,12	399:18 400:20
439:18 440:3	C-reactive	279:1 409:3,10	172:24 187:7	401:9 402:8
440:12,15,19	423:13	409:18,20,23	199:12 200:1,4	404:4 406:13
441:18 442:1	cake 341:10	432:2,9	200:6 201:5,10	407:8 410:18
443:18,22	CALCAGNIE	cancer 6:24 7:23	201:24 202:22	411:4 413:12
444:7,9,12	4:4	9:16,20 10:5	202:23 203:2	415:9,24
445:4,17 446:5	California 4:6	11:5,6,9,10,13	209:19 210:23	417:12,15,20
446:22 447:18	call 39:10 74:8	12:6 28:14,19	211:20 212:22	420:5 421:8,8
448:11 449:5,7	81:23 106:3,4	34:24 35:5	214:4,11,12,25	421:10 422:24
450:9,16,22	113:24 114:2	36:6,7,9,14,15	215:9,15	423:10,15,18
451:10 452:1	136:19 152:7	36:20,23 39:16	216:22 217:11	423:20 439:13
452:20 453:7	157:6,24	40:13,21 41:11	218:4 219:9	443:12 444:23

451:25 453:5	118:9,9,14	142:9 144:14	279:25 361:23	391:23 392:8
454:18 456:25	119:2 123:17	245:11 246:15	362:4 379:10	399:17
457:6 460:12	career 288:11	247:4,16 251:4	394:23 402:7	causing 76:3
462:19 464:4	careful 224:4,21	267:25 268:7	445:22	376:6
466:23 467:5	247:13 372:16	270:9 286:20	causality 60:2	cavity 433:8
cancer/ 198:25	410:19	288:11 325:6	265:19 275:25	435:2
cancers 61:2,6	carefully 194:13	325:12 343:6	362:24 363:12	cease 295:20
358:4	395:10 472:2	345:23,25	419:1 446:2	cell 358:4
candid 332:12	carrier 141:22	355:22 356:14	451:9	444:18
capacity 411:12	carries 94:11	360:5,21	causation 6:20	cell-based 252:8
capture 205:20	244:10	368:21 428:7	7:17 133:25	cells 422:1,1
250:1 447:22	case 37:10 38:2	455:14 460:3	148:22 149:4	cements 284:12
carbon 412:9	38:19 42:7,16	461:5 462:5	206:15,25,25	center 7:23 15:6
carcinogen	42:17,17 55:9	463:15	207:1,11,14	63:7 95:22
77:22 215:8	65:14 70:17	cases 1:11 36:20	239:10 277:10	96:4 100:8
225:24 226:9	78:3 80:2	39:16 40:13	362:8 446:14	104:23 214:4
382:25 384:5	81:17,18	55:7,15,15	463:13	215:15 224:25
384:15 399:22	110:23 111:1,2	135:15 136:7	causative 126:9	225:6,13
400:13 458:20	111:10 112:2,8	136:17 137:2,6	439:13	228:17
466:1,19,24	112:11,18	137:17,18	cause 34:24	certain 16:24
carcinogenesis	132:11 136:20	139:12,16,22	54:20 59:18	28:8 126:3
418:11 421:5	136:21 138:1,4	140:20,20	89:24 90:7,13	244:25 268:23
433:6 439:11	138:6,7,9	157:17 163:14	102:12 107:14	316:12 358:3
carcinogenic	146:7 162:12	167:3,8,20,24	126:5 240:18	449:23 467:4
215:6 225:23	163:3,9 167:10	181:4,6 185:23	278:16 279:2	certainly 16:20
401:2 402:1	181:6 194:22	186:16,17,19	370:22 376:14	21:19 48:21
carcinogenicity	197:1 199:11	186:21,24	383:11,15	56:10 90:24
420:11 422:11	199:19,24,25	187:14,15	384:20 385:23	100:2 104:17
carcinogens 8:9	206:1,25	199:1 200:7,18	386:9,11,18	108:1 129:21
10:25 120:12	207:10,14	200:21 201:4	387:11 388:12	143:7 149:5
231:15 235:25	209:12 219:5	203:5,18 207:3	391:3,11 401:9	164:18 166:10
260:22 465:5	232:14 240:10	239:14 244:6,7	407:8 415:8,24	201:18 222:17
467:8	243:25 244:6	244:8 247:23	432:11 450:21	226:3 260:1
carcinoma	245:13 247:13	248:2,6,10	451:24 453:5	261:4 294:18
428:7	251:15,16	251:3,11	456:25 457:6	352:8 363:6
Cardiology 10:8	255:20 267:16	268:25 331:11	457:14,22	367:21 388:5
cardiovascular	286:18,23	341:17 395:11	467:5	413:21 433:17
10:10 367:4	334:25 336:8	395:23 408:14	caused 313:15	451:16 453:2
care 34:19,22	336:11 345:5,5	categorically	359:3	463:4
62:1,1,2 63:6,9	345:17,17,21	255:5	causes 35:2,6	certainty 452:24
63:15 93:21,23	358:14 399:22	category 100:14	41:20 76:14	certificate 471:1
94:17 96:11	401:8 459:24	162:10 292:8	109:21 125:7	471:13,19
104:10 105:8	461:18 468:6	causal 211:16	125:21 148:23	certification
105:12,13	469:15	212:20 271:22	206:8 219:23	94:16 471:20
110:11 115:23	case- 131:21	272:11,14	220:2 278:19	certified 119:25
116:6,10,17,25	142:5	273:21 274:13	278:22 279:17	471:1,2
117:18,24,25	case-control	275:1 278:6	373:12 374:18	certify 471:3

474:3 certifying 471:24 cetera 430:17 chance 17:2 20:17 71:12 99:8 193:9 299:10 305:12 Chang 351:11 change 8:14 77:17 93:8 206:8 257:16 280:9 313:19 317:4 320:6 340:24 344:1 344:20 383:21 384:2 473:4 changed 93:24 174:15 257:12 changes 79:6 472:8 474:6 chaos 315:17 Chapter 290:1 292:9 characterizati... 271:24 273:13 characterize 260:12 369:25 370:4 382:5 characterized 370:1 charge 24:19 25:17 177:17 177:22 178:7 197:11 198:5 213:19 charged 23:14 23:16 37:25 40:9 charges 178:10 197:21 chart 9:19 247:16 251:4 324:2,16 328:17 329:11 333:2 334:7,8 336:19,23	339:15 341:22 344:22 346:3 347:1,4 355:20 443:9 check 376:23 checks 196:1,9 196:12,19 chemical 8:12 285:23 286:8 chemical-relat... 187:15 chemically 286:12 chemicals 203:17 chemotherapy 63:5 Chen 351:10 cherry- 304:17 chief 81:12 child 58:11 404:11 child's 54:19 childhood 389:4 389:20 Children 10:18 chorus 446:8 chose 97:25 98:4 170:14 246:25 339:21 341:25 CHRISTOPH... 3:12 chronic 96:9 97:16 101:10 103:5 126:3 413:8 417:19 418:6 419:25 419:25 420:2,9 421:3 422:5,11 423:17,19 425:21 chrysotile 458:9 458:17 chunks 181:23 378:10 cigarette 404:21 456:24,24	cigarettes 404:12,17 circle 140:19 292:10 346:6 347:7,21,22 348:13 353:9 353:14 354:6,9 365:18 circling 348:9,9 348:17 351:16 351:24 circumstance 303:21 circumstances 319:11 359:5 387:7 394:18 citation 418:4 433:14,22 434:7 citations 468:22 cite 241:14 273:2 390:5,13 418:8 cited 222:12 252:18 253:3,3 337:5 364:15 364:22 390:10 390:10,11,11 390:12,12 412:3 448:15 cites 43:15 237:24,25 285:8,9 395:6 citing 222:15 237:8 285:21 361:5 city 48:18 102:17 374:21 claim 291:4 claimed 292:13 293:5 clarification 25:1 27:3 40:11 130:10 179:5 clarified 167:8 clarify 20:12	23:12 40:2 55:11 99:2,5 99:12 103:22 104:5 122:2 130:14,16 clarity 58:10 184:7 classification 260:22 classifying 439:12 clean 254:20 clear 26:10 32:16 38:9 105:12 106:25 114:13 132:2,3 161:22 163:6 168:8 184:23 195:20 209:16 245:16 252:12 271:22 305:18 310:4 358:12 433:19 455:25 468:4 clearly 394:24 clicked 311:5 client 155:7 157:3,6 190:14 191:15 192:2 193:10,16 194:6 196:5 clients 155:12 155:18 156:5 189:15 Climate 8:14 clinic 63:10 104:16 105:8 105:12,12 clinical 9:8 100:23 128:4 128:10 246:21 294:7,14 308:16 309:20 310:12 317:8 428:9 clinician 59:1 103:14	close 102:15,16 352:17 CMO 38:2,15 113:7,23 114:3 coach 78:25 83:20 304:6 coaching 156:12 332:3 coeditors 309:8 coffee 88:20 cognizant 252:13 COHEN 3:20 cohort 141:12 141:14,23 142:1,11,15,19 144:16 146:7 233:8,11 238:3 245:6 246:6,15 267:16,24 268:7 286:19 325:6 358:19 360:4 394:25 459:23,25 460:10 461:6 461:18,23 462:4 cohorts 233:3 238:8 247:5 286:22 coinvestigators 232:25 cold 44:7 collating 468:19 colleague 82:23 153:1,8 colleagues 303:7 352:14 361:1 463:17 collect 157:21 404:23 collected 404:24 collecting 157:18 collection 242:24 collects 159:8
---	--	---	--	--

College 94:21 239:4	317:8 337:1 342:11,11 343:12	208:4 completely 47:9 291:8 292:19 336:21 363:3	392:7 396:10 396:13 413:18 413:21	239:17,22 462:12
column 45:18 394:8 414:20 444:16	communicating 223:21	completing 470:18	conclusions 278:9 302:11 303:11 379:7 401:1	confuse 168:6 confused 24:8 308:21
com- 112:22	community 120:10 188:22	complicated 62:16 405:13	conclusive 273:8	confusing 333:23 334:1
Combine 439:8	208:15 209:1 209:17 229:21 295:20 407:25 408:12	complying 114:1	condescending 113:17	confusion 24:6 245:13
combining 425:5	companies 441:21	comprehensive 7:23 214:4 215:15 224:25 225:13 228:17 238:25 264:24	conditions 106:21	Congress 235:4
come 21:2 77:24 104:1 106:13 108:12 152:21 164:25 170:18 177:23 203:20 227:22 278:19 286:16 288:19 325:22 363:17 430:19 431:5	company 81:24 84:15 88:12 109:16 110:7 152:8 185:18 190:15 441:23	concentration 386:15 459:16	conduct 319:15 conducted 147:21 151:3 168:3 231:14 409:11	conjunction 44:2 179:6
comers 105:3 365:24 381:25	company's 441:14	concept 306:24	conducting 318:15	connection 211:16 361:23 469:15
comes 80:2 90:8 96:20 172:1 191:14 196:14 205:22	compared 236:17 365:14 366:23	383:8,9,23 447:3	conferring 58:8 138:19 211:3 213:5 267:10 282:1 296:20 376:19 412:12 426:8 437:14 443:4 447:7 459:21	connotation 71:22
comm- 229:21	comparison 11:6 397:18	concern 298:13 310:16 409:10	consequences 10:19 40:25 63:11 378:6	Consequently 271:24
comment 179:22 216:15 267:2 356:9 358:25 409:4	compatible 235:13 237:2	concerned 80:3 184:1,2 362:16	conducting 318:15	consider 22:9 29:17 122:6 229:16,19 231:1 252:2,16 267:23 318:15 322:5 419:3 442:8 445:8
commentary 306:17 317:23	compelling 439:7 441:16 441:24 442:9	concerns 428:14	confidence 305:22 317:2 327:18 328:19 329:7 330:11 337:3 340:25 341:1 353:8,9 354:2,10,11 355:3 357:9	considerations 146:19 239:11 363:2
comments 14:5 14:11	compete 320:4	conclude 212:20 303:24 304:21 305:2,19,24 322:17 323:18	confidentiality 156:8,17 187:11	considered 6:22 19:6 20:5,7 22:4,12,14 66:3,8 245:20 249:23 253:12 392:12,14 395:10 396:2 435:12
commercial 73:22	competent 132:25	concluded 274:13,25 379:24 391:22 425:21 449:3 470:21	confirm 197:9 422:4	consistency 270:23 292:8 292:11 321:6 322:4 357:22 359:9
commission 164:19 240:7 474:17	competition 456:7	concluding 272:22	conflict 196:6,15 196:19,23 305:24 323:18	consistent 32:2 271:17 272:3
commissioned 266:24	complain 112:22,25	conclusion 212:10,11 277:3 278:12 279:22 283:24 285:14 323:13 379:12 380:19 381:2 382:14	conflicts 196:1,9 196:12	
Committee 231:13,13	complaint 110:23 111:6,9 111:25 112:16 196:16,17		confounding	
common 10:14 49:13 292:12 369:3,7,7 443:11	complete 21:8 86:24 99:23 191:18 206:5 244:20 310:18			
communicate	completed 131:19 135:9,9			

278:1,2 357:21 359:2 consistently 172:9,23 236:13 237:14 271:19 272:3 consists 77:13 constituents 211:18 consult 106:4 225:13 233:9 consultant 188:2 consulted 105:25 consulting 117:25 135:18 136:11 152:8 consumer 8:7,9 231:14,16 232:11 235:24 235:25 consumers 78:18 80:14 84:22 87:20 223:14 contact 54:20 174:20 184:15 284:6 contacted 185:13 contain 75:5 78:4,11,17 84:6,17 211:19 contained 6:15 17:15 54:23 57:4 70:19,20 71:7,19 87:24 92:14 127:9 162:21 170:4 208:8 248:21 249:3 285:24 336:1 382:12 382:13 436:11 containing 401:4,8,24,25 contains 51:16	210:4 215:7 225:23 contaminated 383:2 contamination 283:11 content 176:14 177:8 191:9 309:9 context 46:10,12 83:16 111:3,4 134:20,25 156:24 170:20 180:20 193:19 193:22,22 200:3 263:5,7 321:22 378:20 419:8 continue 150:9 337:15 430:23 Continued 4:1 5:1 7:1 8:1 9:1 10:1 11:1 12:1 continues 50:13 453:7 continuing 292:1 contract 154:17 155:5 contracted 154:23 159:20 159:25 contractor 153:21 154:8 155:16 176:21 contracts 33:1 33:19 contrary 215:13 contributed 20:8,11 395:13 contributions 468:9 contributor 444:22 control 9:17 142:6 146:8 267:16 286:23	471:23 controls 224:8 245:13 248:12 251:15,16 331:11 336:9 341:18 345:5,6 345:17,17 356:16,17 358:15 461:18 conversation 173:22 174:2 176:6 266:12 342:22 conversations 175:22 176:18 176:24 conveying 33:2 Cook 351:11 cooking 374:24 Cooper 185:11 185:13,18 186:8,18,22 194:22 195:3,4 195:12 cooperation 26:16 COPD 96:10 103:3,4 104:17 143:1 copies 31:3 165:2 378:3,19 427:2 437:17 copy 17:13,23 32:5 82:14,21 85:21 86:12 88:17 91:3,3 112:16 134:8 139:3 140:11 154:4 312:12 325:15,17 348:18 393:5 397:7 426:24 430:11,14 431:19 471:11 corner 285:1 419:13 cornstarch	334:18 335:1 337:7,13,14,18 corporate 4:5 192:2 194:5 Corporation 110:11 correct 15:3,7 15:17 18:3 20:21 21:16 25:5,6,8,9,11 25:14,19,20,22 27:20 28:25 30:23 31:13,14 31:19 33:22,22 33:23 34:19 40:7 43:16,17 48:20 49:4 52:16 57:22 58:13 61:3,8 67:2 79:13 84:13,18,19,19 84:24 88:4 90:25 92:7 93:20 94:21 95:2,21 96:13 96:14 98:18,19 100:15 101:2 108:6,22,24 120:18,25 121:12,23 124:19 126:11 126:16 127:7 127:15 128:5 131:2,3,6 134:4,11,16,17 135:11 136:2,8 140:17 142:13 142:17,21 144:19 145:4 150:4,7,10,13 150:14 151:5 154:24 159:9 159:10,22 163:5 174:5 177:18 178:7,8 178:11 179:7 179:15 181:7	181:10 183:8 193:14,15 201:11 203:12 205:11 206:9 207:2,4 208:5 209:7,21 211:22 213:1 214:4 222:16 222:17,24 229:14,17 232:1,2,6,8,22 242:4,5 247:6 248:4,16 249:4 254:22,23 255:14,21 257:23 258:23 260:19 264:12 268:8 290:11 290:13 293:20 294:15 305:10 305:13 306:21 308:1 324:13 325:7,14 329:11 339:3 339:11,12,15 340:2 342:17 345:6,18,19,21 346:1,16 349:12 351:9 352:9 354:13 356:24 357:11 360:9,12,22,23 362:5,24 363:20 364:23 364:24 367:2,7 368:18,25 369:1 370:6 373:1 378:25 380:22 381:21 382:1 384:15 384:16 391:17 392:15 393:18 393:23 394:3 396:13 398:12 399:24 402:15 403:15 407:13 409:6 413:5
--	--	--	--	--

417:7 418:13	37:19,21 38:17	350:14 376:19	205:8 246:9	93:21 94:17
419:10 423:23	38:22 42:8,8	377:22 390:1	247:2 259:3	96:11 264:22
425:15,17	42:12,25 47:13	397:6 408:5	330:16 339:18	319:25
428:19 432:3	52:23 53:2	412:12 419:16	397:9 430:1	critically 105:14
434:13 437:24	57:23 58:8	420:13 424:15	court 1:1 2:17	criticisms
440:8 444:6	61:13 62:21,24	426:8 437:14	13:14,19 71:17	460:23
446:2 452:8	65:21 66:18	438:4 439:16	112:18 134:9	criticize 118:14
455:22 456:17	68:13 70:23	443:4 447:7	146:1 156:10	460:1 462:9
459:24 465:2	78:20 80:17,21	459:21	161:2,3 205:15	critique 256:24
467:10 471:11	80:21 82:11,19	counsel's 77:4	341:25 407:22	crocidolite
474:4	82:20 83:13,19	count 60:21	472:15	388:4 391:10
correcting	85:3 86:2	137:13 299:6	courtesy 39:4	457:13 458:11
101:18	88:16 89:10	404:17 454:19	114:10	CROSS-EXA...
correction 77:4	98:10 99:8,10	456:15	cover 206:22	464:24 467:19
272:7 330:19	100:9 103:22	counter 237:22	441:2	crossroads
400:11	109:10 112:13	counting 455:15	coworkers	113:5
corrections	113:9,11	455:25 456:7	404:6	crummy 343:3,4
472:3,5 474:6	114:14,18,20	countries	Cramer 222:14	CSR 471:18
correctly 45:22	114:25 115:1,3	367:14 374:25	286:1 351:10	cubed 376:1
77:3 88:1	126:21 130:17	country 249:9	351:10,11,12	404:21
97:18 100:25	132:16,25	couple 20:15	351:14 427:16	cumulatively
101:12 102:24	133:10 135:21	27:5 97:25	462:22	391:9
103:9 236:21	136:10 138:19	100:3 108:17	crazy 269:20,23	cure 39:18 40:15
272:1,6 282:17	139:4 140:6	116:8 130:7	269:24,25	curious 257:8
286:6 292:17	154:3,12 159:3	137:14 143:22	270:7,15 271:2	316:22 323:11
292:22 301:14	160:12,22	164:17 175:1	create 168:23	current 91:19
302:8,15 306:3	161:2,21 166:1	201:23 230:2	198:13,13	93:18 97:21
370:9 379:20	166:16 169:4,6	230:23 231:1	224:11 250:10	257:22 319:14
395:17 417:21	193:6 204:10	247:11 250:13	250:14 266:3	currently 128:3
420:6 428:11	211:3 213:5,6	253:13 259:3	created 170:20	128:9,19,24
439:14 468:22	217:22 218:10	264:21 269:12	267:1 287:14	129:2,5 136:6
Correlative	218:12 227:12	272:24 291:16	346:9	137:5 187:3,4
11:16 427:10	227:24 228:4	293:3 300:4,9	creating 468:22	203:2
correspondence	234:3 255:23	300:22 308:13	credentials	curriculum 7:9
166:14	267:10 273:25	314:1 332:18	188:16 288:21	91:3,10,24
cosmetic 75:25	275:15 277:20	386:5 392:18	credible 224:12	92:9 127:10,18
76:13 285:24	280:3 282:1	456:21 458:17	255:7 260:15	142:24 146:9
286:9	287:7 290:23	462:20 463:23	260:17 315:13	364:21 390:9
cotinine 404:23	292:3 296:20	464:10 467:23	316:13	curve 458:19
406:8	299:21 304:6	couple-year	criteria 93:23	459:3 465:5,14
counsel 7:5	312:11 324:22	408:1	239:9 245:24	465:16 466:2
13:18 17:8	326:5,15,21	coupled 452:24	246:18 271:18	466:20 467:8
19:7 24:11	329:14,16,17	course 19:19	278:2 307:23	customers 79:20
26:9 27:11	329:19,22	42:2 62:24	358:24	cut 61:19 275:16
31:3,23 33:6	330:2,6,25	106:12 155:14	criterion 269:9	336:3 337:15
33:11,20,23	335:12,13	160:24 166:16	292:11 419:2	cutting 337:11
35:17 37:15,17	336:3 338:4	167:5 189:17	critical 34:19,22	CV 88:17 92:6

92:21,23 93:4 108:13,15 121:4,9,9 126:22 127:4 128:2 142:24 143:9 CYNTHIA 4:3 cytokines 444:19	21:20 22:11 23:1 68:9 121:9 235:25 308:19 328:6 369:14 438:25 Daubert 6:20 7:17 70:24 71:13 133:25 206:15 207:16 207:17 day 21:21 39:5 158:2 195:9 264:18,19 275:16 313:19 327:6 404:12 404:16 407:18 427:2 431:11 437:16 474:16 days 158:3 472:12 deal 106:13 123:22 128:13 128:16 142:25 143:24 dealing 106:15 106:16 132:6 134:9 deals 48:22 106:19 dean 294:7 death 34:25 35:2 35:6 deaths 36:6,14 debate 78:13,15 303:5 decades 230:2 230:23 231:1 302:7,25 303:8 303:8 December 8:15 decide 27:9 161:3,3 332:17 339:13 decided 316:14 319:1 352:15 decision 333:11 399:16	decisions 301:7 303:14 306:2 368:5 declare 316:12 decrements 371:15 deemed 472:15 defend 184:17 184:21 DEFENDANTS 4:16 Defendants' 6:14 17:14 defending 132:25 defense 60:22 defer 254:15,24 deferring 255:4 255:19 256:14 define 73:5 definitely 22:10 283:10 378:9 definition 262:21 361:6 447:16 definitive 221:14 degree 94:23 95:6 degrees 175:15 deletions 91:23 deliberately 247:8 deliberating 261:14 deliver 164:21 demonstrate 352:2 demonstrated 412:24 422:11 425:11 463:24 464:3 demonstrates 282:12 283:8 demonstrating 270:20 demonstrative	324:16 325:25 denigrate 461:20 DENNIS 3:19 dep 172:7 department 11:21 15:9 34:18,20 47:21 56:13,14,14 93:4 94:3 100:20 118:23 118:23,24 119:1 314:12 Departmental 7:15 departure 271:23 depended 402:8 depending 403:19 404:25 depends 164:24 191:10 196:18 197:18 263:5 318:21,22 321:14 402:23 402:24 depo 172:8 deponent 13:16 474:1 depose 114:25 deposed 81:17 deposing 472:12 deposited 449:15 deposition 1:14 2:1 6:10,12,16 7:3,6 8:3 9:3 10:3 11:3 12:3 13:8 14:5,11 14:13 15:11 16:13,18,23,25 17:16 18:3 22:12 26:12,13 27:20 29:1,14 31:16 34:6,11 38:18 45:3 60:7 66:19	81:21,22 82:13 82:14 83:15,17 83:23 84:4 85:2 86:10 88:17 111:16 114:7,9,19,21 133:1,2 137:19 138:8 154:12 156:11 157:25 160:23 165:9 167:24 177:17 231:21 257:20 258:22 296:4,7 296:13 311:8 313:13,15 341:6 439:9 470:18,19 472:2,10,13,14 depositions 15:16,21 21:5 38:3 65:11,17 67:20 132:15 133:4 137:16 139:23 165:6 165:12,15 256:11 derivative 198:11 derived 271:23 dermal 266:20 describe 24:3 119:23 244:11 described 182:24 200:16 209:14 355:21 360:20 456:10 describing 196:21 388:23 description 74:7 189:24 244:16 deselect 244:25 251:22 deserves 292:12 design 288:12 343:10 358:21 447:3 461:25 designs 144:19
--	--	--	--	--

267:15 461:20	62:3 63:17	133:20,23,24	470:13,20	difficulty 319:17
desist 295:21	115:24 116:7	135:16 138:15	474:11	digest 300:23
destroy 112:9	117:1 118:10	138:23 139:11	Diette's 32:2,6	digit 458:16
285:10	118:21	151:22 156:9	difference 35:4	direct 13:25
detailed 256:9	diagnosis	159:7 160:6,10	207:7 252:9,14	45:12 65:25
271:16 277:25	124:21 423:15	160:15 161:7	305:20 322:18	83:9 85:5
details 69:16	dial 106:23	161:17 169:10	420:21 429:25	121:3 236:4
detect 46:22	diaphragm	170:13 172:17	430:5	268:17 271:9
detectable	339:10	180:11 182:23	different 28:2	271:10 282:8
283:19	diaphragms	184:3 189:8	51:11 59:16	284:15 290:21
detected 39:17	339:10 359:7	192:25 193:8	60:1 65:13	338:1 378:14
40:14	dictate 173:4,10	193:18 204:25	73:2 90:6	393:19 400:18
detectible 284:7	173:13 363:12	205:2 206:13	91:17 93:15	414:10 416:23
detection 47:2	363:14	206:15 208:2	94:11 104:8	433:5 471:23
286:2	die 36:22 41:4,9	213:9 215:12	118:24 119:1	directed 444:23
determination	diet 102:21,22	219:5,14	121:24 124:1	directing 394:7
396:3	108:4	220:10 231:11	143:8,9,16	direction 50:23
determinations	dietary 102:20	235:18 264:9	148:1 168:13	directly 158:20
339:2	108:3	267:8 273:19	170:20 174:12	158:25 195:4
determine	Diette 1:15 2:1	280:16 281:19	176:22 178:16	284:4 406:11
191:16 402:17	6:2,10,12,17	286:17 289:22	200:25 203:19	449:15
405:10 450:20	6:19 7:3,10,13	290:1 297:14	205:22 213:20	disagree 45:24
determined	7:14,16,21 8:3	297:18 304:16	217:18 219:25	88:3,9 216:14
365:3 389:3	9:3,15 10:3	308:7 310:11	220:2 222:23	217:7,8,15
398:21,22	11:3 12:3	312:9 320:24	224:15 241:6	219:21 223:4,6
402:6 453:17	13:17,22 14:2	324:17,18	250:16 253:3	223:9,10
determining	14:10 16:6,9	325:4 326:1,20	258:9 263:2	233:25 273:19
251:3	16:12,14,17	326:23,24,25	266:19 282:5	274:11 275:24
develop 46:21	17:19,22,24	327:1,3,10,24	291:24 320:1	276:19,19
48:6	18:22,24 19:19	330:7,10	323:25 335:2	380:18 420:20
developed 48:23	20:3 27:12,18	332:10 338:20	336:8 339:9	432:2,12
375:1	34:13,23 37:8	355:20 360:2	340:9 342:12	disagreeing
developing	39:14 42:14	366:11 369:3	342:21,21	392:1
46:25 233:22	44:20 45:1,2	369:16 377:16	349:15 354:21	disaster 171:1
234:14,20	45:16 46:20	377:19,24	357:21 382:6	discern 357:20
236:17 237:18	52:8,11 54:6	381:15 391:2	387:10 389:23	disclose 135:19
263:13 372:18	54:10 55:5	393:1 397:1,4	396:12,14,16	156:9 166:13
372:25 374:25	57:8 58:25	399:13 403:1,2	400:9 401:11	430:15
376:11	62:23 63:20	403:4,14	403:7,19	disclosed 135:19
development	66:9 67:20	410:17 411:8	404:18 412:6	135:22 136:4
46:13 417:20	75:3 82:9 83:8	413:23 416:19	412:10 423:14	137:10 156:10
420:4 444:22	87:5 89:9,14	422:8 426:23	433:2 436:20	203:8
develops 47:18	91:5 95:14	427:5,8 431:14	436:20 451:14	disclosing
devoted 298:16	98:18,24	437:19 438:24	453:9	187:12
diabetes 107:8	100:18 102:2	441:1 442:22	differently	disconnect 43:1
diagnosed 39:17	115:16 117:22	465:1,25	177:20 241:3	436:10
40:14 60:15	123:20 133:6	467:21 470:11	451:15	discuss 127:4

173:16 174:10	disparities	133:16 137:9	380:25 381:4	466:2
176:16 260:22	103:8	140:25 141:23	402:5 430:8	dose-response
298:10 309:12	disparity 286:22	146:25 159:3	434:4 438:10	358:1 458:19
309:25 432:9	dispense 14:4,10	166:12 177:2	438:24 440:5,7	459:3 461:3
discussed	displayed 87:7	187:10 190:10	441:23 442:3	462:18,21,25
157:17 176:25	disputable	213:12 229:8	documentable	463:1,2,10,19
260:24 338:22	433:21	237:10 256:4	282:16	464:3 465:5,14
453:3	dispute 415:7	268:19 270:5	documentation	465:16 466:2
discussing	429:6 434:2,5	274:8 275:6	31:24 33:8	466:20 467:8
141:11	454:1,2 467:7	282:24 304:4	documented	doses 459:15
discussion	disputing 381:2	304:11 305:7	273:2 336:25	dotted 349:18
314:17 338:15	381:6	308:10 319:22	342:2	350:9
377:15 416:23	disregard 287:2	326:13 328:2,4	documents 18:2	double 132:24
440:24 454:21	287:11,13,18	329:13,23	21:15 34:3	doubled 215:4
464:21 467:18	321:7	331:21 332:10	161:22 253:4	222:5 223:18
467:25	disrespectful	335:4,8 337:10	260:15,17	doubt 96:20
discussions	219:17	347:4,13	449:8 468:23	129:20 182:4
173:20	disseminating	351:16 378:24	doing 21:4 38:3	291:22 463:22
disease 9:16	309:21 434:25	381:6 399:12	38:12 40:3	dozens 423:14
10:10 41:4	dissemination	414:8 416:22	63:19 83:13	Dr 8:4 13:16
46:14 90:8	434:18	426:6,9 431:2	99:13 135:17	14:2,10 16:6
96:9,11 97:15	distinct 245:18	437:17 438:14	153:7 155:6	16:12,17 17:22
97:16,17	distinction	440:11 447:16	163:25 187:13	17:24 18:22
100:24 101:9	357:18	448:4 468:4	192:15 197:2	19:19 20:3
101:10,11	distorting	doctor's 27:13	275:15 316:6	27:12,18 32:2
103:5 104:18	362:16,18	346:11	320:8 321:1	32:6 34:13,23
104:22 106:20	distracted	document 1:10	326:22 327:3	37:8 39:14
107:9 122:11	394:10	6:15 7:8,11,19	342:14 350:2	42:14 45:1,7
143:1 148:24	distribute 49:20	7:22 8:4 9:15	352:13 376:22	45:16,18 46:20
263:14,23	distributed 50:2	16:18 17:14,25	386:25 403:2	52:8 54:6,10
372:2,13,16,18	310:13	18:5,13,19	405:22 408:2	55:5 57:8
372:20 376:11	District 1:1,2	19:4 20:4 32:1	425:4 428:24	58:25 62:23
383:11,15	13:14,15	32:14 36:10	451:11 472:6	63:20 67:4,14
388:13 450:6	diverge 73:12	37:3 213:14	dollars 408:2	67:20 69:10
450:21 451:8	diverse 236:19	224:2 225:3	Don't 302:1	70:18 71:7
467:5	divide 458:12	247:21 267:1	dose 80:2,4 90:9	75:3 81:7,16
diseases 61:2	division 34:21	274:2 275:5	125:23 126:6	81:22 82:12
101:4 103:3,25	93:20 310:12	276:4,22 277:5	386:7,8,9,10	83:8,8,15 84:4
104:20 121:22	divorcing 80:17	282:25 290:24	386:11,15	87:5,16 88:4
122:6,10	doc 61:20 63:7	297:6 300:7	391:2 392:9,20	89:9,14 98:18
123:23 142:3	doc- 216:1	304:12 306:24	402:2,8,17,19	100:18 102:2
143:5 150:2,7	doctor 26:19	308:12 311:19	403:4,6,8,17	115:16 117:22
367:4 387:12	35:21 39:6	312:13 326:7	404:1,1 405:2	123:20 133:6
388:6 415:16	42:6,21 83:2	330:17 332:8	405:17 406:18	133:23 135:16
dish 252:8	83:15 85:16	341:21 346:9	421:20,21	139:11 151:22
dismantling	87:12 97:4	346:11 347:8	457:18 458:11	156:9 159:7
471:12	99:18 130:14	378:21 379:4	465:9,15,15,17	160:6,10,15

161:7,17	273:19,24	early 17:12	318:15 332:17	endometriode
169:10 170:13	274:12	105:20 242:3	333:2,7 364:4	417:13
172:17 180:11	drafts 173:21	easier 164:8	390:4 412:7	endometrioid
182:23 184:3	176:24	181:24	418:15 436:6	417:13
189:8 192:25	draw 382:14	Eastern 13:14	441:13 462:10	engage 181:6
193:8,18	465:19	easy 24:18 224:5	462:25	187:2 193:18
204:25 205:2	drawing 353:16	Economic 8:6	elaborate	engaged 153:15
206:13 215:12	362:8 382:20	231:14 235:23	404:13	153:20 163:18
219:5,14	drawn 272:14	economics 94:25	elaboration	187:2 195:25
220:10 228:23	dribs 21:2	edit 158:5	211:24	196:3,5 199:1
229:10 231:11	DRINKER 5:4	168:24 181:12	electrical 186:20	410:2
232:13 233:9	drive 4:5 368:12	181:13	electron 11:17	engagements
233:19 234:8	driving 201:22	editing 162:16	427:11	136:12
234:11 255:21	313:22	162:16	electronic 165:3	engages 194:6
256:10,11,15	Drs 65:11 68:9	Edition 8:20	Elevated 10:15	England 313:8
257:4,21,22	71:18 72:5,15	290:2,19	elevates 263:13	316:23
258:20 264:9	72:16 428:23	editor 319:10	elevations	English 94:24
266:25 273:19	Drug 228:1	editorial 182:25	444:19	94:25
280:16 286:17	434:11	183:3,6 316:15	Elizabeth	enormous 341:1
290:1 296:4,6	Duces 6:13,17	469:5	312:22	ensue 315:17
304:16 310:11	due 295:15	editorialize	ELMO 45:14	entails 444:18
314:9,19	298:12	169:7	58:6 83:12	entire 18:19
317:12,13	Dulaney 2:6	edits 181:15	85:23 87:7	80:24 191:11
318:5 319:16	13:9	educating	102:8 211:2,5	221:21 246:7
320:12,12,24	duly 13:23 471:6	310:16	212:9 236:7	276:21 277:3,5
322:11 325:4	dusting 359:5	effect 271:22	271:11 291:20	293:12 343:21
326:1,20 327:3	Dusts 10:24	272:11,14	299:19 328:12	354:16
327:10 329:4	393:17	278:6 279:25	365:9 427:1	entirely 245:16
330:7,10	dying 410:18	302:12 352:19	430:22 438:2	283:1 469:18
332:10 338:20		465:9	else's 70:14	469:24
355:20 360:2	E	effective 370:8	83:23 324:7	entirety 265:8
361:2 364:14	E 3:1,1 6:1,8 7:1	effects 102:18	elucidate 286:5	entities 56:6
377:19,24	7:19 8:1 9:1	150:7 362:16	Embryology	94:11 209:14
381:15 391:2	10:1 11:1 12:1	459:17	439:6	253:22 266:7
399:13 403:14	13:1,1 294:3	effort 26:16	employ 243:24	entitled 6:23 7:8
410:17 411:8	473:2	133:11	employed	7:12,19 8:16
421:25 422:8	e-mail 164:22	efforts 182:24	238:10 243:14	9:4,15 10:4,23
426:23 427:8	311:6 444:1	256:10 306:1	461:16	11:8,12 12:4
427:15 438:24	earlier 46:23	Egli 285:8	enable 370:8	45:7 166:16
441:1 443:17	70:5 115:6	either 22:14	encompasses	214:6 281:24
443:21 444:16	179:21 197:20	46:22 55:14	125:1	328:9 364:10
444:17 465:1	202:20 259:24	92:1 161:18	endeavor	427:10
465:25 467:21	264:21 341:6	165:15 202:10	445:12	entity 33:4
470:11,13	377:25 406:13	248:16 249:19	endeavored	193:17 224:8
drabs 21:2	428:15 432:1	250:8 254:8	32:16	224:18 295:13
draft 8:11 265:3	467:25 468:12	257:21 260:2	endeavoring	entry 350:22
267:6 272:17	469:2,4	306:21 313:19	24:14	environment

8:13 364:13	244:15 252:22	346:4,6 347:8	321:6,17	190:25 194:17
406:11	265:18 288:19	348:14 350:12	349:25 357:2,2	194:22 215:24
environmental	290:2,18 322:5	374:15 375:3	359:20 362:14	226:20 238:2
94:6 97:15	381:17 383:19	375:24 386:6	373:11 375:1	239:15 254:4,6
101:8 103:6	452:6	404:20,22	379:9,14,15	254:7 263:11
149:21 150:2,7	epithelial 6:24	405:2 458:11	380:19 383:21	318:25 347:15
150:12 152:8	12:5 45:8,20	459:12 461:1	384:3 411:9	357:25 371:6
369:11,12,13	46:1 234:20	estimated 9:19	415:3,12,13,14	387:8 449:12
EOC 414:17,18	236:17 442:21	45:21 46:1	418:23 421:12	462:23 469:8
epi 78:22 94:6	epithelium	328:9 331:15	421:13 422:3	examples 41:14
144:13 425:5	439:9,10,11	451:18	424:13 435:4	exceed 350:12
454:13	Epstein 11:20	estimates 248:1	436:11 439:7,8	exceeds 346:7
epidemiologic	equipment	380:14 391:12	441:16,24	exception
10:7 11:4	186:20	et 9:14 271:17	442:9 447:24	170:12 247:9
155:7 184:22	equivalently	430:17	450:1 462:17	327:20 346:11
185:8 190:2	305:22	ethnic 236:20	463:3	Excerpt 7:6 8:19
193:21 210:22	equivocal	etiological	exacerbations	excess 352:1
238:13 239:1	221:18	285:20	371:7	466:23
245:4 262:21	era 319:14	Europe 387:8	exact 37:1,5	excesses 395:14
263:6 269:11	392:22	European 439:5	191:24 213:17	exclude 133:12
270:12,19	errata 472:4,6,9	evaluate 184:21	361:11	199:18 246:2
382:7 386:17	472:11 474:8	321:18,24	exactly 24:25	exclusion
epidemiological	error 329:10	evaluated 64:24	27:22 49:1	246:17
59:25 76:15	errors 306:1	321:25 322:1	71:21 134:12	excuse 30:5
143:25 153:16	especially	evaluating	154:9 155:13	42:17 43:15
154:1 155:11	102:13,17,21	123:2 321:5,17	208:6 296:16	50:24 96:10
211:15 264:24	108:4 239:19	322:4	308:24 319:23	120:15 159:17
381:25 397:16	322:23 403:21	evaluation	360:10 365:25	172:5 188:9
399:14	ESQUIRE 3:4,5	132:6 292:19	367:5 382:5	193:4 213:20
epidemiologist	3:12,19 4:3,9	evening 467:21	383:16	214:7 275:14
34:15 49:8	4:17,18 5:3,9	event 270:17	examination 6:2	277:14 298:11
59:14 229:17	5:16	eventually	13:25 394:1	317:12 369:23
229:20 253:19	essential 418:25	205:14	460:2 471:8	370:1 400:20
288:15 454:15	establish 446:14	everybody	examined 13:24	440:21 452:15
epidemiologists	established 32:9	57:16 175:13	examiner 27:9	executed 264:10
59:24 60:13	41:20,25	evidence 59:13	examining 8:7	exercise 91:13
190:4 317:14	226:23 227:16	59:17 89:18,23	102:20 235:24	216:10 251:2
462:3	374:16 375:4,6	210:22 211:16	example 29:16	251:10 268:25
epidemiology	376:18 394:25	212:19 214:25	48:16 60:6	344:1 347:12
8:19 11:11	404:19	216:22,25	105:19,20	359:24 455:15
55:22 77:10,15	establishes	217:5,11	106:14 118:6	exhibit 16:13,14
80:18 94:3,21	154:18	221:22 222:1	122:7 123:15	16:17 17:18,19
95:3 97:16	esteemed 317:13	234:12 236:18	156:10 157:16	17:23,25 18:14
100:21 101:9	estimate 23:7	237:7 239:16	157:19,25	18:19,24 20:4
103:2 131:25	137:13 316:9	268:11 273:3	167:21 169:23	21:14 22:3
132:7 153:3,7	316:10,17	284:19 285:5	170:17 172:17	26:2,2,12 27:1
154:23 212:18	331:17 340:20	287:1 293:13	172:19 181:17	28:24 29:12

43:6 44:20	372:19 376:12	454:5,16	367:23 371:24	eyeball 440:1
45:2 52:3,9,11	exists 81:3	461:24 468:5,9	373:20 375:19	eyes 54:21
52:21,25 54:4	294:17 344:5	469:18,23	378:6 379:11	438:15
54:7 82:7,8,9	433:5 461:16	expertise 52:15	379:13,18	
86:6,8,14 91:4	expect 38:23	52:19 57:2	380:21 383:10	F
91:4,5 95:10	225:9 359:4	78:14 96:6,8	387:21,25	F 5:18
95:13,14 98:23	expectancy	96:16 100:23	388:5 389:4	face 54:19
98:24 100:9,10	119:7	191:17 193:19	392:9 394:23	161:23 226:6
101:20 121:5	expecting 73:1	194:7 229:20	395:2 397:17	308:15
132:9 133:18	300:23	288:8	399:15 403:23	Facebook 229:2
133:20 134:8	experiencing	experts 165:15	404:3 413:9	229:6
138:16,16,18	104:1	171:12 206:3	420:1 424:14	Facsimile 11:23
138:22,23	expert 6:19 7:12	226:5 251:18	447:25 448:1	fact 14:19 15:10
139:2 213:4,7	7:16,20 21:20	255:19 256:10	450:6 456:23	35:11,14 36:5
213:9 235:17	22:10 42:5	260:23 343:8	457:5,21	41:3,23 50:12
235:18 267:7,8	51:6 55:17	410:12 430:17	458:23,24	72:12 77:16,17
281:19,23	56:1,22,23	460:2	459:9,11,19	84:14 150:9
289:20,22	57:3 60:6,12	expires 474:17	461:1,8,14,15	171:2,7 198:9
292:5 297:14	66:9,10,23	explain 274:9,10	466:8,19,22	257:2 279:1
297:17,18	67:14,21 68:8	318:23 334:13	467:4	333:21 351:25
298:3,5,22	69:12 71:4,7	374:2 385:3	exposures 369:4	356:15,21
305:6 308:6,7	75:24 76:12	explore 25:23	391:13 399:14	358:18 364:20
308:22,25	81:10 108:22	71:11 186:1	express 88:13	378:20 384:17
309:16 310:19	109:17 119:21	exploring 301:1	expressed 22:5	388:10 395:21
311:24 312:5,9	120:10 131:4,9	expose 215:10	108:3 209:13	410:2 415:21
324:17,18,24	133:24 134:9	226:13	455:4,5	420:21 432:9
325:24,24	135:23 136:15	exposed 284:3,4	extends 379:12	435:16
327:10,19,23	137:1,5 139:13	284:5 285:15	extensive 212:17	factor 126:10,15
327:24 328:5	139:24,25	286:3 331:16	316:25	214:17 225:15
351:19 366:11	140:21 145:25	340:18 366:20	extensively	262:18,23
369:16 377:16	162:3,22 168:1	386:15 389:19	370:1	263:11,16
392:25 393:1	168:18 169:17	391:8 410:22	extent 31:23	285:13 318:14
393:14 396:25	172:5 173:5	428:24 461:2	33:7 76:11	factors 7:24
397:1,4 413:23	180:16,19,23	exposure 8:16	77:13 135:17	102:12 107:14
416:18,19	181:13 183:14	10:4,11,20	136:11 137:10	125:12,18
427:4,5 431:14	184:16 185:19	11:5 46:10,13	140:24 156:7	145:6 214:6,7
431:18 437:13	186:4,24	46:14 47:4	166:2 187:11	239:20 263:9
437:19,21	187:19 191:9,9	122:21 148:23	255:8 326:12	263:18 362:17
442:19,22	202:7,25 203:8	212:21 239:16	external 54:21	362:19,22
465:20,22	205:4,7,16	263:13 270:10	64:9	factory 392:17
468:6	206:14 208:23	270:21 271:21	extra 92:24	facts 295:24
exhibits 6:10 7:3	227:25 228:5,6	277:22 278:4	extract 339:3	298:21 299:3
8:3 9:3 10:3	232:14,21	281:24 282:16	extracted	fail 472:14
11:3 12:3 70:1	233:7 256:18	283:18 284:7	327:19 336:12	fair 14:14,24
exist 337:5	257:9,20	285:12,14	351:1	18:7 20:18
344:7 461:15	264:10 327:12	286:4 364:10	extraordinary	22:2 34:8
existing 76:15	364:22 410:7	365:4,13,16	462:1	37:13 41:10

48:3 49:2	96:5 112:11	fibres 10:24	finding 163:25	firm 158:19,22
50:11 55:12	208:11 270:12	393:16 401:3,4	277:2 285:15	159:1 161:18
66:20 106:18	394:8 408:13	fibrous 399:22	353:5 362:23	173:3 206:21
107:13,20	faster 463:7	400:13,16	419:24 425:10	firms 192:9
119:5 120:8	father 403:24	field 70:14 467:2	425:11 449:19	first 13:23 19:4
121:19 124:16	fax 444:1	467:2	findings 247:14	20:4 21:14
124:20 126:7	FDA 64:10	fields 467:3	287:16 334:23	28:10 55:12,13
126:12,17,25	431:23 433:12	fifth 34:24 35:5	358:3 387:14	55:21,24 62:10
127:3,8 129:11	434:24 435:10	36:2	408:13 421:19	137:19 152:17
132:20 136:25	452:22	figure 40:6	454:21 462:22	184:15 185:6
142:10,14,18	FDA's 433:25	138:13 141:2	fine 14:3 38:20	189:25 198:11
142:22 144:17	fear 301:8 368:2	158:2 189:20	45:23 53:15,15	200:14 211:8
150:17 152:3	feature 323:6	190:3 200:24	53:19 68:6,6	212:5,13,14,15
182:16,25	features 286:12	240:8 348:1	68:22 74:10	215:1 216:19
185:5 191:19	288:12	385:3 443:10	122:17 151:14	234:16 241:24
193:19 194:10	February 21:13	443:16	156:21 166:10	242:3 274:5
197:11 201:25	21:16 22:6	figured 313:23	204:18 215:20	275:9 278:13
205:6 207:25	140:17 208:4	378:11	215:22 218:19	278:14 290:9
208:8 210:3,7	264:11 369:14	file 146:1 180:13	291:23,25	298:9 300:24
214:2 215:12	federal 134:8	393:10	292:3 300:14	302:3,10
221:18 223:21	146:1 160:20	filed 132:10	312:18 338:8	321:13 366:24
231:9 243:23	166:6	133:17	346:25 355:8	369:21 397:22
248:22 257:2	feedback 143:8	files 441:23	374:11 377:7,8	414:20 428:5
258:19 260:24	feel 73:14	filtered 250:13	400:5 428:2	444:15 463:15
268:1 270:4	221:17 320:9	Finch 4:9 6:4	440:15,15	fit 146:18
276:22 295:14	321:1 336:2	188:7,13	finish 25:2 48:11	333:15 343:20
352:7 372:10	356:12	464:25 465:2	61:13,19 62:10	fits 333:16,17
381:13,15	fees 37:24	465:21,24	62:23 113:11	381:9
382:11,15	feet 339:11	466:9,16 467:6	130:11,12,16	five 52:5 117:21
390:19,25	female 36:7,15	find 7:12 72:16	146:24 189:21	349:21 350:7,9
399:13 409:12	284:20 285:6	85:6 86:11	210:17 237:18	376:25 392:16
429:2 430:20	females 365:19	92:17 97:2	244:12 258:15	394:25
437:2,3,5	365:21,22	108:19 135:6	264:13 268:19	flashed 188:13
438:5 440:12	Ferrante 399:3	164:8 191:13	275:13,17	flat 462:25
fallacious 291:9	399:8	238:18,23	276:13 283:4	flaws 279:20
292:20	Fessler 153:9	240:15 245:3,7	303:1 330:25	flip 76:6
falls 184:9	fiber 8:17 73:23	245:10 306:10	335:5,16	flipped 67:9
false 218:4,25	74:5 90:5,13	309:14 316:12	351:20 380:11	flipping 297:3
familiar 191:11	90:19 281:24	320:16 334:24	386:19,20	FLOM 5:10
231:6 265:4	458:5,6,8	342:9 344:6	421:14 460:19	Florida 3:16
301:21 390:5	fiber/cc 391:9	347:20 371:10	466:11	flowed 270:20
390:23 459:7	457:13 458:10	375:3 376:5	finished 28:5	fluid 406:2
familiarize	458:16,18	386:16 405:25	146:25 227:10	FLW 1:5
299:23,25	fibers 72:17,22	435:9 437:6,10	227:10,14	fly 311:3
family 118:15	73:5 126:20	446:2 448:14	358:9	focus 107:18
far 37:2 58:13	127:6 401:9	448:23 451:9	finishing 235:1	149:12 201:22
58:16 92:5	457:5,21 458:7	462:4	258:14	202:2,4 205:2

356:15 379:6	82:1 88:5 90:1	219:11 220:17	374:9 375:14	239:23 243:12
focused 358:13	90:15 96:17	221:19 222:8	375:20 376:16	243:24 269:13
focuses 102:11	97:22 103:18	222:25 223:7	380:4 381:20	270:24 288:13
107:14	104:2 105:10	223:24 225:2	382:2 384:9,22	317:12 324:3
Focusing 247:15	106:6 107:16	225:17 226:2	384:25 385:15	460:9 471:5
folks 175:18	108:8,23 109:4	228:8,13	390:20 391:4	fortunately
176:12 177:6	111:11 112:5	230:19 231:3	391:19,24	227:6
194:8,9 228:17	114:4,9 115:25	231:19 232:3	396:8 399:23	forward 161:7
421:16 469:5	117:20 118:25	233:1,12 235:5	400:14 401:10	320:3
follow 42:9	119:9 120:17	236:25 243:16	402:10,18	forward-looki...
62:11,24 85:15	123:25 124:23	244:2 245:25	405:12 406:21	301:10
85:16 270:3	127:13 128:21	246:10 247:24	407:10 408:4	found 72:5,11
followed 146:2	129:9,18 130:2	248:7,17,23	408:23 409:13	72:12 89:15
following 25:21	130:25 131:5	249:11,24	410:8 411:1,13	182:13 213:20
146:11 416:7	131:11 134:21	250:6 254:17	412:19 413:14	215:4,5 222:4
follows 13:24	135:3 140:23	255:22 258:4	417:25 418:19	222:6,18
font 394:13	141:13 143:6	260:10,25	421:6 422:25	223:16,17,18
Food 228:1	143:20 144:20	262:19 263:20	423:11 428:18	242:14 244:23
434:11	145:7,16 147:8	265:20 267:19	430:7 433:13	253:13 266:17
footnotes 171:11	147:18,23	268:2,12 271:7	438:12 443:18	273:20 274:12
171:15 172:1,4	148:18,25	272:16 273:25	445:4 446:5,22	280:24,24
Ford 293:24	149:15,23	274:17 275:4	450:9,22	281:5,13
294:1,3,5,6	150:21 151:6	276:3 278:11	451:10 452:1	302:12 311:20
foregoing 471:4	152:11 155:1	281:8,15	457:1,7 458:21	314:1,3 357:8
471:20 474:3	158:14 159:13	282:21 286:10	459:4 462:10	358:2 401:3
foreign 417:17	159:23 160:12	287:6,25 289:2	463:20 464:7	419:21 424:12
forest 327:13	166:3 168:19	291:13 295:23	466:4,25	425:10,20
348:10,12	169:20 170:15	298:20 299:12	467:12 474:7	463:10,10,12
forever 112:8	171:16 172:11	301:18 304:3	formal 15:24	foundation
183:25	174:6 175:5,12	306:6 307:1,7	format 93:4	60:18 75:10
form 15:18 18:4	176:2 178:12	314:25 318:13	97:8 168:24	210:12 215:17
20:22 21:17	179:8,17	321:10,21	176:23 184:1	229:23 232:18
22:7 23:19	180:25 181:9	322:9,21 331:4	408:20 468:20	233:4 234:3
35:25 36:24	182:18 183:1,7	333:19 334:10	formatting	235:8 250:22
38:4 39:9,19	184:18 186:10	334:20 339:4	469:14	272:17 289:4,8
41:15 42:19	187:20 188:5	339:17,25	formed 242:25	290:24 291:14
43:20 47:6,22	188:11 190:22	340:6 343:18	247:23 253:16	292:2,5 295:24
49:5,21 50:25	192:4,10,17	345:22 352:3	345:20 392:6	299:3 301:19
51:19 54:14,25	193:20 194:1	352:10 353:11	399:15	310:20 319:20
55:8,16 56:2	195:5 197:13	354:4 356:25	forms 31:12	409:14 430:8
56:19 58:14	198:7,21 199:3	357:13 358:21	73:22 387:10	432:15 438:12
59:12 60:4	201:12 202:9	360:13 361:24	formula 439:12	440:16 442:2
62:4 63:24	205:10,17	362:10,25	Forrest 197:2,7	443:19
65:12 67:15	206:10,19	363:13 367:8	198:6,9	four 22:18 40:8
68:11,14 69:14	207:18 208:20	368:19 371:19	forth 21:6 39:9	349:20 350:6,7
69:20 72:8,19	209:3,9,20	372:1,5,14	131:25 145:14	fourth 369:23
73:7 74:2 75:8	215:16 218:6	373:3,17,22	205:15 239:17	Fox 398:6

fragrance 55:3 385:14	funded 294:23 311:2	142:2 146:17 182:24 207:3	give 15:16,20 23:8 29:15	195:3,4 203:21 209:23 212:8
framed 235:12	funding 148:6	213:15 235:13	37:24 92:24	213:8 216:2
framework 145:15,20 146:3,12	148:10,12,15 294:18	237:3 238:12 253:21 260:14	114:11 122:16 137:25 140:13	218:14,19 225:19 236:8
Francis 8:22	funds 148:9	262:23 263:1	152:1 162:7	244:24 266:14
frankly 26:15 257:20	further 77:25 140:4 271:21 272:10 278:5	384:24 435:11 435:15	164:13 193:6 202:19 204:10	270:5 275:6,11 275:11 292:9
fraudulent 287:14	278:17,20 279:24 286:4,5 470:11	generating 468:25	216:6 218:8 232:1 234:4	297:12 304:11 306:9 313:16
free 73:14 336:2 356:12	fuss 340:20	generic 75:4	256:4 282:22	324:5 328:1,2
frequently 15:16,20 282:15	future 444:24	generous 342:25	321:8 324:22	328:14 333:9
friend 228:25 294:10	genital 51:17 59:3 75:7 80:15,15	genital 51:17 59:3 75:7 80:15,15	330:14 347:14 355:15,15 363:6 397:11	334:19 335:24 338:6,7,8 341:10 351:22
friendly 294:11	G	214:24 216:21	399:21 400:12	353:22,23
friends 229:2,3 229:4	G 13:1	217:10 218:3	401:7 407:6	355:2,11,13
front 34:4 85:21 87:1,12 91:8 95:17 99:21,24 101:22 121:6 135:2 165:1 169:18 206:13 208:2 210:1 227:7 247:17 267:12 277:16 282:3 290:5 304:13 324:13 352:14 355:17 366:14 369:19 393:15 410:10 414:7 443:6	gamut 107:11 GARBER 4:3 Gates 351:12 gathered 164:16 gathering 468:19 gears 280:9 GEIER 3:19 general 6:20 7:17 10:22 40:17 71:24 79:7 105:2 107:6 133:25 141:25 147:17 200:17 203:10 206:15,24,25 207:13,20,20 211:25,25 212:25 223:3,8 226:22 227:15 243:4 244:22 363:11 364:4 378:5,7 379:24 389:6 411:3 447:23 456:1	219:8 220:12 221:6 233:23 236:15 237:16 272:14 273:22 274:14 276:1 279:2 329:1,5 330:11,24 331:2,14 332:19,20 333:22 334:18 339:10,23 344:25 347:6	given 137:16,20 138:7 139:18 255:21 409:3 474:5 gives 295:11 343:21 giving 14:23 56:17 78:2 105:20 207:10 234:3 283:18 284:7 286:3 407:21 glad 37:4 169:25 197:9 glean 253:14 globally 215:18 go 16:6 19:7 23:22 24:17 25:22 26:20,21 39:5,8 40:5 44:13 45:18 48:3 58:6 63:1 76:7 85:19,19 85:25 86:23 97:2 98:4 101:24 105:23 140:4 160:15 162:8,9 192:22	396:18 397:5 399:2 400:19 419:20 427:3 431:19 432:21 440:9 447:8 463:5 464:11 464:17 go-to 180:22 goal 21:24 251:21 343:4 344:6 God-given 15:25 Godard 351:11 Godleski 427:16 428:23 goes 85:8 117:2 158:18,19,25 159:1 179:24 223:23 226:11 244:21 258:13 258:19 284:18 285:19 291:24 302:10 438:6 going 14:21 19:11 26:21 27:8,10,12 28:6,22 31:22
fruitful 445:12	General's 379:8 380:19 393:4	32:10 47:3 70:16 113:5 114:11 130:6 175:19 177:4 182:23 199:23 202:11 316:18 319:4 366:6 374:8 407:17 420:16 450:3		
full 82:14 162:7 182:6 236:8 243:8 252:19 309:15 371:20 469:3	generally 48:9 64:19 67:10 77:8 109:19			
fully 41:20 375:1,4,6				
function 372:20				
fundamental 205:21				

32:18 33:6,14	355:5 359:24	gotten 20:25	groups 236:20	10:1 11:1 12:1
33:17 34:1	371:10 377:10	21:9 133:14,15	guess 26:25 49:8	habit 73:24 74:3
37:23 38:8	388:12 397:10	167:22	55:20 72:20	habitual 214:23
39:3 44:1,3,16	425:24 426:17	governed 156:8	105:8 132:9	216:20 217:9
47:12 58:6	426:24 427:25	government	147:25 152:12	217:24 218:2
64:13 77:24	430:22,23	35:13	152:19 158:21	219:7,22
78:2 82:12	431:1,6,6	grab 204:16	159:4 197:18	220:11 221:5
83:4,14 85:24	435:20 438:1	gradient 362:12	205:23 211:4	hair 404:25
86:5,7,8,20	438:11,22,22	grading 392:4	246:12 264:20	406:3
89:4 92:20	439:18 440:13	grant 92:3 148:6	267:1 279:21	half 204:15
93:17 96:2	447:11 456:15	311:2 316:8,18	283:9 331:11	377:3
99:11 112:21	464:13,20	grants 148:10	349:19 350:6	halfway 45:17
112:21,22,22	469:20 470:17	148:12,15	352:17 359:10	hall 315:20
112:24,25	Golkow 13:5	320:4	359:12 360:3	hand 324:21
113:18,24	good 14:2,3,4	graph 326:2,4,4	405:14 407:1	439:23
114:17 115:10	15:23 16:11	443:8	409:15 423:16	handed 85:5
132:22 135:16	17:11 19:15	great 140:12	444:10 448:10	86:14 134:7
136:10,12	22:16 28:15	163:12 226:17	449:10 455:25	328:4
151:17 154:5	39:12 58:24	333:7 334:1,3	guessing 288:17	handwritten
154:12 156:6	65:16 68:17	343:24	guidance 33:20	334:24
158:22,23	88:20 89:12	greater 321:8	363:6	hang 216:6
162:14 166:1	100:4 124:14	349:10 389:6	guided 146:11	294:11
167:19 173:18	130:10 139:9	Green 351:11	guideline 362:8	Hank 153:9
182:13 193:6	151:9 152:4	Greenland 8:20	guideposts	haphazard
195:22,22	170:1 171:7	9:5 288:22	457:12	463:1
199:24 204:8	174:17 204:5	289:1 290:12	guts 360:11	happen 54:23
204:20 206:1	204:25 205:1	297:22 317:13	guys 21:4 185:2	93:17 181:19
212:25 215:25	223:10 227:8,8	318:1,5 320:12	226:25 306:18	319:6
216:1,1,3,13	227:8,8 230:18	Greg 403:1,2,3	313:21 377:3	happened 22:13
218:21 219:9	231:2 240:10	Gregory 1:15	397:10 413:25	316:21
221:11 226:25	241:11 252:3	2:1 6:2,12,17	430:21 431:10	happens 27:16
227:1 234:4	258:18 272:23	6:19 7:9,13,14	440:18	104:12 164:23
245:22 246:18	277:5 280:6	7:16,20 9:15	GYN 60:20,21	194:16 459:15
256:23 280:8	323:2 327:6	13:16,22 16:2	60:25 61:6	459:17
290:23 294:22	343:10 364:20	16:8 66:8	63:14 107:10	happy 39:11
299:22 304:14	377:21 391:12	100:18 133:24	gynecological	114:2 319:3
306:12 310:8	392:22 426:14	206:14 208:2	62:2 105:9	334:11 344:17
311:14,15	427:1 431:25	470:20 474:11	106:2 115:23	346:21 373:25
315:13,16	465:1 467:21	ground 320:8,25	116:6,24	hard 53:7
316:15,19	goodness 343:17	group 8:22	117:18 118:9	144:24 165:1
317:4,9 318:23	Google 242:17	152:22 190:1	gynecologist	182:5 202:19
319:5,8,17	242:20,21,21	238:25 261:10	115:20	260:11 289:14
320:2,19 326:6	244:18	261:13 309:21	Gynecology	301:6 328:13
335:23 338:5	gosh 342:8	310:14 394:9	239:5	348:1 358:24
338:14 342:20	374:12 375:15	394:20,22		358:24 433:22
342:21 347:25	GOTSHAL	395:10 396:2	H	442:16 446:14
352:20 353:1	4:19	398:20 402:5,6	H 6:8 7:1 8:1 9:1	Harlow 285:21

348:2,7,8 351:10,10 Hartge 327:22 328:6,18 329:1 329:4 330:21 332:14 333:17 333:18 335:24 336:11 338:23 339:8,21 344:3 344:4 346:12 347:5 350:6,17 351:3 Hartge's 351:15 Harvard 215:3 222:4,12 223:17 Hashtag 100:22 hazard 271:24 273:12 he'll 218:18 390:2 head 107:11 154:14 197:10 240:10 241:11 370:14 head-to-toe 105:4 headed 8:4 heading 359:1 headings 171:2 174:18 health 8:8,14 10:19 11:21 46:21,25 47:18 47:20 48:6,15 48:23,25 94:7 95:2,6 100:22 101:21 102:1 103:7 107:14 231:15 235:24 260:18 264:21 265:17 266:5 266:11 267:6 267:14 268:10 272:13 273:20 274:12 275:24 278:10,25	367:15 369:24 370:3 378:6 409:3,10,20,23 432:2,8 healthcare 144:9 462:3 hear 15:14 115:6,8 220:7 260:6 307:22 321:12 348:24 466:14 heard 116:9 154:4 202:20 227:4 258:3 294:22 307:15 330:6 354:21 389:16 406:25 409:20 410:15 hearing 6:21 7:18 8:7 70:24 71:13 133:25 202:11 206:16 207:17 231:14 232:11 233:20 236:6 332:11 heart 107:9 HEASLIP 4:18 85:12 464:17 heavy 387:21,24 395:1 heck 360:16 held 2:1 13:8 338:15 377:15 440:24 464:21 467:18 Heller 273:2,5 280:17,18 281:23 282:6 428:14 help 27:4 122:2 133:11 157:24 158:1,5 162:15 168:18 172:19 175:3 176:1 180:7,15,23 185:19 186:3 186:23 193:12	193:25 197:9 301:10 410:11 410:11 helped 20:12,16 91:18 168:23 169:11,12 170:24 311:2 helpful 164:7,9 303:13 helping 468:20 helps 155:9 172:19 340:23 Henderson 285:9 hey 112:20,20 431:10,10,10 Hi 467:22 high 41:8,8 269:17 289:21 380:15 406:2 higher 155:25 215:9 226:13 226:22 282:15 347:10 354:3 367:21 highlight 70:10 highlighted 31:4 70:5 highlights 30:18 30:23 69:22,24 highly 36:2,3,16 37:20 256:13 Hill 145:6,10,15 145:23 146:2 146:11,19,20 147:5,14 239:11,21,24 268:11,15,23 269:9,16 270:14 271:1,4 271:18 278:1 358:24 362:22 419:8 Hill's 447:22 hired 224:11 histologic 422:2 histology 417:13	historic 391:13 history 282:16 283:19 284:7 285:16 286:4 hold 24:10,10 28:21 44:2 98:5 120:9 144:1 236:19 314:9 323:9 366:6 438:19 438:23 439:17 439:24 holds 100:20 holler 88:24 Holmstock 5:23 13:4 home 30:11 404:13,22 456:25 homes 102:17 honestly 55:19 73:18 88:9 96:19 133:1 230:3,21 429:3 hope 38:6 113:20,20 198:22 205:18 207:8 352:19 434:22 446:18 hopefully 205:4 hoping 133:16 314:21 Hopkins 7:11 9:7 15:6 34:19 48:7 93:19 95:9,21,24 96:21 98:4 100:8,19,21 104:9,25 118:20 205:9 208:9,14,19 209:1,17 213:21 223:14 224:6,7,22 225:10 230:2 294:7 308:15 309:20 310:2	310:13 312:2 313:7,8,9,10 313:24 314:2 Hopkins' 309:13 hospital 9:17 96:1,3 117:4 224:17 325:12 345:5,5,17 hospital-based 356:8,15,21 357:3 358:14 359:14 360:8 hospitals 345:12 Hotel 2:5 13:9 15:2 hour 23:14,24 24:19 177:18 177:22 204:16 377:2 hourly 23:10 24:2,6,21 178:20 hours 23:4,8,8 25:17 257:13 257:13 376:25 467:13 house 231:12 404:16 household 10:14 284:5 369:4,8 huge 387:20 human 10:25 11:21 285:7 439:4,5 448:14 448:22 humans 449:13 humongous 379:2 hundred 14:13 14:15 155:22 155:23 301:22 344:15 453:23 458:13 hung 199:24 hurry 463:6 Hutfish 4:20 hybrid 291:15
--	---	--	--	--

hygienist 120:1	346:10	405:11	include 47:2	360:6 463:12
hypothesis	identification	impacts 84:7	100:23 101:6,8	incorrect 121:12
89:19,23	16:15 17:20	97:15 101:9	107:2,5 120:14	155:2 179:16
315:11 316:11	18:25 44:21	149:21 150:2	120:15,20	increase 102:22
420:1,10 439:8	52:12 82:10	150:13	122:7 123:5,7	108:5 214:24
441:17,25	91:6 95:15	impenetrable	133:12 146:17	216:21 217:2,3
hypothetical	98:25 133:21	181:22	245:17 247:1,8	217:10 218:3
78:21 79:3,22	138:24 213:10	imperative	247:9 251:3,21	219:8,24 220:1
80:18 234:4	235:19 267:9	46:21 369:24	252:25 339:15	220:12 221:6,9
235:7 383:7	281:20 289:23	370:3 472:10	355:1 363:21	221:9,10,14,15
hysterectomy	297:15,19	implemented	388:17	221:16 237:21
285:16	308:8 312:10	367:15	included 43:23	371:6 379:17
I	324:19 327:25	implementing	146:5 225:14	380:20 402:1
IARC 10:23	366:12 369:17	292:11 368:1	245:2,9,9	417:15 420:3
41:21 239:3	377:17 393:2	implicated	246:20 249:3	increased 215:5
241:11 252:18	397:2 413:24	285:20	251:12 264:23	222:6,18
253:12 259:2,5	416:20 427:6	implication	268:4 336:19	223:19 233:22
259:6 260:4,8	431:15 437:20	160:10 405:18	includes 95:25	234:14 236:16
260:18,21	442:23	implications	101:3 107:22	237:17 384:19
261:8,12,21	identified 36:21	363:8	305:23 332:21	389:5 413:11
262:16 387:3,5	134:6 241:12	implied 405:24	354:12,20,23	414:17 422:23
387:5 391:16	identify 238:12	importance	355:4 401:4	423:9
391:22 392:6	246:16 247:22	303:25 304:22	including	increment 371:7
392:12,12,14	350:11 353:22	important 41:7	102:16 237:23	increments
393:17 396:2	354:2 438:4	53:17 254:6	252:6 310:14	371:14
397:15 398:20	identifying	293:11 315:4	349:24 467:5	independent
399:16 400:19	102:11 172:22	323:16 342:10	inclusion 217:4	153:21 154:8
400:20,25	ignore 246:18	342:13 360:15	245:24	154:16 155:15
402:4 412:4	322:13	387:20 403:4,9	inclusive 251:7	251:2
457:16	II 226:19 392:22	419:2 451:17	251:9,9	indicated
IARC's 392:7	iii 276:15	451:19	incomplete 46:7	165:17 254:14
399:16	ill 105:14	impossible	78:21 79:2,21	315:4 398:22
ICTR 310:25	illness 117:8	85:15 90:16	97:24 98:21	403:4
ICTRs 294:22	319:25	impressed	235:7 383:6	indicates 19:5
ICU 105:22	illnesses 104:15	185:22,25	414:21	379:14,15
143:13	370:22	218:18	inconsistencies	380:20
idea 194:25	imaginable	improper 83:22	359:6	indicating
230:3 284:12	117:8	193:5 455:21	inconsistency	465:17
317:15 323:5	imagine 104:12	456:17	286:22 287:1	indicative
336:4 382:20	352:12,14	imprudent	356:19 358:2	271:22 272:10
429:3	383:24	79:18 80:12	358:20,21	277:19 278:5
ideal 332:18	Imerys 109:25	87:18	359:9 360:1	278:17,21
333:1 340:21	110:5 442:2	inappropriate	inconsistent	279:25
344:19 394:18	impact 150:6	160:17 161:1,5	291:6 292:14	indicator 323:24
ideas 301:5	342:24 383:19	incessant 115:14	293:9 355:23	403:25 404:2
identical 213:22	384:19 385:22	incidence 46:22	356:1,14,16	406:8
	impacted	389:19	357:9,24 360:5	indisputable

433:9,17 435:3 individual 193:17 244:19 individuals 47:4 47:19 60:14 75:6 106:20 215:14 232:15 284:10 309:23 409:4 indoor 368:25 369:25 370:4 370:18,25 371:17,24 372:12,23 373:15,21 374:7,17,23 375:19 376:10 induce 420:2,10 induces 423:19 industrial 119:25 387:21 387:25 industry 232:11 infected 383:2 infer 283:13 379:10 inference 298:17 362:8 inflammation 12:5 102:19 126:3 241:18 241:20 413:8 418:6 420:3,9 420:24 421:4 422:3,5,12,23 423:9,14,17,20 424:14 425:21 439:10 442:21 443:11 444:18 444:21 inflammatory 107:9 417:19 420:1,23 432:11 inform 71:23 363:15 407:24 408:12 409:10	440:4 information 9:12 16:24 22:17 47:3 56:18 57:12 59:25 71:6 75:16 91:16 98:17,19 102:1 162:21 164:22 165:24 166:17 167:1,2 172:1 172:2,10 175:23 224:25 225:7,15 237:6 237:22 238:1,5 239:6 248:21 249:2 253:14 253:22 266:12 266:17 272:22 279:20 322:12 336:20 339:9 341:2 342:6 343:21 344:18 357:15 363:5 386:2 392:8 434:8,18,25 441:11 445:21 451:2,2,3,4 456:11 457:10 457:17 460:17 informative 456:14 informed 30:8 30:10 59:2 informing 251:17 informs 270:13 ingested 266:21 Ingham 26:12 26:13 27:19,25 29:13 55:9 133:12 138:1,4 138:7 141:4,7 197:1,7,12 199:18 Ingredients 55:3 inhalable	102:23 108:6 inhalation 54:19 57:4,22 201:13 413:10 414:15 415:4,8,10,11 inhale 142:4 405:7,16 inhaled 266:22 405:19 406:1 415:15,22 457:5,22 initial 279:16 initially 250:12 initials 216:3 initiates 439:10 inner 48:18 102:17 Inner-City 10:17 innovative 301:9 inpatient 105:14 input 183:17 198:1 272:22 inputs 368:10 inquired 232:5 inquiry 31:16 insert 182:2 insignificant 287:19 insist 183:16 instance 194:6 264:1 instigate 417:18 418:6 Institute 9:7 294:13 308:16 313:9 institution 225:1 instruct 135:17 136:12 173:19 176:15,19 instructing 156:19 166:5 177:9 218:11 instruction 166:11 167:4	INSTRUCTI... 472:1 intellectual 183:17 intelligent 329:24 intend 399:21 400:12 401:7 408:15,18,21 intending 401:20 intensive 63:6 104:10 105:8 105:11,13 intent 198:23 intention 92:22 408:16 intentionally 274:2 330:4 332:7 420:14 interest 107:21 108:3 196:15 196:23 200:3 314:23 315:1,3 322:14 349:4 374:5 interested 102:13 108:1 150:10 153:6 155:6 163:19 185:8 195:10 332:11 342:9 448:2 interesting 150:3 311:17 313:18,20 315:18 347:21 interests 97:14 97:21 101:8,15 103:2,12 143:1 interfaced 174:21 interject 31:23 166:2 internal 34:21 64:9 94:18 105:2 107:7	International 10:8 45:9 364:12 internist 118:16 interpret 77:18 287:16 373:25 386:22 454:20 interpreted 239:6 323:16 interpreting 198:2 318:16 interrupt 39:1 243:17 interruption 251:24 intersection 465:10 intersects 458:20 459:3 466:2,20 467:9 interstitial 122:9,11 interval 305:23 328:19 329:7 330:12 353:10 354:3,10,11,16 355:3 intervals 317:2 327:18 353:8 357:9 intervention 370:8 intraperitoneal 285:14 introduce 15:24 introduced 152:17 introduction 413:17 454:20 invent 344:9 inverse 463:11 investigating 234:9 investigation 294:7 invite 261:5,5,12 261:21
--	--	--	---	--

232:15 261:7 invites 260:22 invoice 23:1,5 24:20 34:5 158:24 161:14 161:24 invoices 22:18 22:21,25 40:4 40:8 158:4,13 179:2,12 468:25 involuntary 10:20 378:6 393:8 involve 33:8 157:17 involved 60:20 67:18 128:3,6 128:9 144:23 147:16 152:9 152:12 163:13 194:21 200:21 209:12 230:8,9 240:6 248:12 319:24 428:15 involving 199:11 254:16 365:12 IOM 394:2 irregularities 256:12 issue 9:10 41:19 47:20 79:7 81:4 129:25 135:18 142:11 142:16,20 150:19 166:8 199:2 225:4 241:10 246:23 251:23 261:14 294:18 298:16 299:5 301:2,8 308:18 309:3,9 337:8 359:2 387:15 391:16 394:14 448:7 449:1 467:10	issue's 309:9 issued 264:22 295:18 issues 25:1 57:4 134:10 145:22 254:16 256:22 257:17 462:12 item 66:9 67:19 150:25 items 20:19 22:3 22:4 iterative 91:13 238:19 Iturralde 285:10 <hr/> J J&J 19:16 157:3 159:16 184:15 184:25 185:1,2 210:9 441:22 J&J's 27:7 JAMA 328:6 Jersey 1:2 3:22 4:21 13:15 JESSICA 5:9 JJCI 53:17 JNJ 8:18 9:22 job 55:20 93:15 93:15 132:21 191:18 jobs 215:9 226:13 Johns 7:11 9:7 15:6 34:19 48:7 93:19 95:9,20,24 98:4 100:8,19 100:21 118:20 205:9 208:9,14 208:19,25 209:17 213:21 223:13 224:6,7 224:22 225:9 294:7 308:15 309:13,20 310:1 313:10	Johnson 1:4,4 4:16,16 13:11 13:11 49:17,18 49:19 50:1,1 50:12,13,19 51:6,6,7,15 53:4,12,25 55:6,6,14,14 55:17,18,25,25 56:5,6,13,13 57:10,10,20,20 63:22,22 64:4 64:4,23,24 65:3,3 69:11 72:17 74:11,11 74:21,21 75:15 75:15 78:3,10 78:16 79:17,19 79:19 80:8,13 80:13 81:13,13 81:17,17 84:10 84:10,16 87:17 87:19,19,23,24 108:22,22 109:3,3,7,8,16 109:16 136:8,9 136:16,16 137:1,1 150:18 150:18 151:3,3 157:9,9,12,13 157:17,18 158:10,10,20 158:21,24,24 158:25 159:1 161:19,19 165:16,16 381:17,17,17 381:18,18 382:24,25 384:23,23 385:12,12 406:15,15,16 406:16 407:2,3 407:6,6,19,19 407:22,22 Johnson's 7:4 49:19 50:19	51:7,15 52:8 53:4,13,13,21 53:25 54:1 56:16 69:11 72:18 74:15 78:3,9,10,17 79:17 80:9 84:16 87:17 joined 312:7 joint 100:20 Jonathan 185:11,12,13 185:17 186:22 194:22 195:3,4 195:12 Jordan 347:16 journal 10:8 45:9 123:21 125:18 126:13 127:9 144:18 145:14 147:6 299:5 315:13 364:12 369:10 411:10 439:4,5 Journal's 316:23 journals 121:16 judge 39:10 71:5 113:21 114:2 218:15,17 219:4,4 220:9 220:14 337:16 337:23 338:9 judgment 251:3 251:10 336:13 361:19 362:14 July 71:5,17 219:6 jumbled 202:12 jump 132:22 156:6 June 92:6,10 121:9,13 jury 16:1,3 70:17,23 205:15	K K 3:5,7 KATHERINE 5:3 keep 27:11 53:14 54:18 85:23 112:7 164:14 168:12 177:13 242:9,9 334:7 358:25 451:11 Ken 287:21 288:7 290:9 kept 347:5 key 241:12 keywords 268:24 Kim 364:9,14 Kimmel 7:22 214:3 215:14 224:24 225:5 225:12 228:17 kind 29:24 46:10 56:21 57:12 63:8 70:11 74:2 97:2 104:7,11 104:18,24 105:4 154:19 181:15 195:2,7 212:2 240:19 242:10 254:7,8 257:10 266:7 269:7 289:1,11 299:14 333:22 333:25 336:16 341:21 348:12 402:24 404:5 406:17 421:19 450:1 452:25 kinds 64:17 97:7 126:3 162:11 209:13 224:14 224:15 266:19 342:24,24 358:3 412:8
---	--	---	--	---

421:7 448:20	144:12,13	235:9,10,11	320:2,8 321:4	451:3,14,15
knew 153:1	147:10 149:2,4	237:2,18,20	321:23 322:1	452:5,12,23,24
155:8 185:20	153:19,24	238:2,19,22,23	322:11,12,14	454:14,25
186:6 312:3	155:19 157:5,6	239:3,13,22	323:8,11,12,14	455:8,10 457:2
383:9,14	157:13,15	240:4,6,14,17	326:11,22	457:11,15
435:10	158:2,5,17,18	245:19 247:12	329:25 331:9	458:10,12,14
know 14:15,21	158:19,22,25	250:14,15	331:24 332:16	458:15 459:15
15:12,15,19,20	159:24 160:4	252:5,11 253:8	333:1,4,20	461:21,22,25
21:4,21 24:7	161:12,19	255:5 256:21	334:5,13	463:6,14
25:21 26:23	162:13 163:8	259:25 260:12	336:11 337:4	466:13 467:1
29:5,16,23	165:2 168:5,21	260:14 261:3	340:15,19	468:19,21,21
32:25 35:2,3	169:21,25	262:2 263:10	341:7,20	468:22,24
35:13 36:13,16	170:20 171:3,6	264:18,25	342:19 344:19	knowing 163:20
36:19 37:3,8	171:24 172:20	265:11,22	348:2 349:13	289:18 388:10
37:21 41:6,10	174:18 175:20	266:3,4,5,6,10	353:3 358:19	knowingly
44:8 46:3,4,16	175:22,23,25	266:13,18	359:6,13,16	304:9
48:2,13,14,17	176:7,8 178:14	268:21,21	361:6,13,13,14	knowledge
48:22,25 49:7	178:15,23	269:10,19,19	361:15,20,20	40:20 255:11
49:14 50:8,16	182:7,10	270:14,22	363:4 364:15	known 110:14
51:11,20,21	183:19 185:16	272:21 276:23	367:19 368:6,9	152:13 186:8
53:9,18 58:16	186:14,14	279:22 281:4	368:11 369:6	215:7 225:24
63:4,11 64:18	187:22,23	281:16,17	371:16 372:22	226:9 284:8
67:3,7 68:5,23	190:1,23,24,25	283:11,13	374:4,22,22	373:4,6,7
69:2,5 70:2,9	190:25 193:2	284:11,13,13	375:13,17,17	455:15 459:17
70:11 72:12,20	194:16 195:6	287:14,14,21	376:11,23	knows 15:12
73:22,24 75:12	195:19 196:11	287:22,22	379:2 382:8,9	133:16 313:18
79:23 81:6,14	196:16,17,19	288:1,3,7,12	387:6,14 388:4	Kotsopoulos
82:4 83:3 88:9	196:19,22	288:20,21,23	388:8,20,22	351:13
88:23 90:5	197:19,21,24	288:24,24,25	389:17 390:4,5	Kurta 351:13
91:15,15 94:9	198:1,2,9,12	289:6,9,11,14	391:12 392:23	
95:23,23 96:19	200:21 206:1,2	293:16,24	401:19,25	<hr/> L <hr/>
97:6,8,9,11,11	206:2,9,20	294:4,6,17	403:5 405:15	L 4:3
97:24 100:4	207:21,22	295:9,12,12	405:17,22	label 94:10
104:6 106:9	208:11 210:8	296:1 299:6	408:1,10,13	95:24 314:13
107:6,10 109:1	212:23 213:18	302:22 303:4	409:16,19,22	labeled 239:10
109:7 110:5,8	213:19,21,21	303:10,10,20	412:9 421:16	353:19
110:21 113:7,8	216:12 217:19	303:20 306:17	421:17 422:2	lack 286:19
115:5,10	219:19,25	306:20 307:23	424:10,19,25	304:1,23 405:5
116:22 117:5	220:23 222:15	308:24 311:4	425:5 426:6	460:25
118:2,7 119:22	224:6,7,8,9,10	311:18,20	429:9,12,12,13	lacks 60:17
123:2,5,16,17	224:10,14,17	312:22,24,25	433:15,16,23	75:10 210:11
125:2,22 126:1	225:5,7,8,8,10	313:2,3,5,18	435:8,12 437:7	215:17 229:22
130:8 131:8,19	226:16,18	314:3,12	442:6,6,7	232:17 234:2
132:16 133:8	228:23 229:10	315:14,15,16	445:7 446:24	235:8 250:21
137:12 140:24	229:17,18,24	315:17 317:3	447:4,5,23	272:17 295:23
141:3 142:7	230:21,25	317:11,19	448:19 449:12	299:2 301:18
143:8,10,13	231:5 232:19	318:4,4,5,5,6	450:11,19	409:13 430:7

432:14 442:2 443:18 ladies 15:25 112:20 laid 292:5 Langseth 425:13,14,20 language 225:14 226:16 279:5 392:2 large 86:11 123:3 361:13 361:14,14 larger 305:21 362:17 Lash 8:21 289:7 289:12 290:14 late 39:17 40:14 407:17 lately 229:25 latency 41:10,13 41:24 45:19,25 46:8,9 latest 455:3 462:22 latters 239:19 laughed 353:2 law 158:19,22 159:1 161:18 173:2 192:9 206:21 lawsuit 109:15 lawsuits 184:17 lawyer 185:7,10 194:12 lawyer's 18:5 lawyers 18:14 184:25 195:2 209:5,7,10,12 276:24 lay 290:24 Lazar 309:8 lead 126:4 302:20 309:4 369:8 370:11 370:12 413:11 421:18 423:20	427:15 448:1 leading 415:15 leads 439:10 learned 152:22 317:10,10 leave 93:10 185:2 237:10 256:9 384:12 leaves 217:2 leaving 237:5,12 237:22 lecturing 301:4 led 283:12 383:10 leeway 268:21 left 21:25 182:8 254:21 291:17 293:16 320:24 406:6 left-hand 45:18 444:16 legal 71:22 109:10,17 131:4,9 134:20 134:25 137:1 188:2 193:19 202:7 207:3 228:5 428:9 legitimate 270:25 legs 339:11 Leslie 1:25 2:16 13:20 471:18 let's 18:11,14 23:7 25:2 27:11,15 41:13 44:11,12 45:14 47:20 83:20 85:22,23 100:7 100:12 101:17 102:7 121:1 122:14 133:18 158:7 161:14 170:10 184:14 192:20 209:23 210:24 218:19 218:20 225:19	231:10 236:8 243:21 263:8 263:15 267:5 275:11 297:12 297:16 298:9 299:18 305:5 305:18 320:15 320:17 324:2 338:8 353:24 355:11,13,14 358:10 360:18 360:19 374:20 376:21 396:18 398:13,17 399:2,20 416:17 431:12 431:13 447:8 464:11 letter 11:20 431:23 441:2 443:16,17 level 272:20 284:9 387:24 406:2 456:23 457:4,21 459:16 466:22 LEVIN 3:13 LHG 1:5 Liability 1:7 13:12 life 119:6 203:10 lifetime 379:11 420:22 lifted 115:7 ligation 285:17 light 11:16 427:10 limit 52:18 97:9 limitation 421:18 limitations 460:9 limited 39:18 40:15 395:21 line 9:18 55:2 80:16,24 83:11 84:2 87:11	97:13 214:12 266:16 349:18 350:10 353:17 361:9 369:22 369:23 473:4 lines 436:1 452:12,14 link 172:24 240:14 372:2 386:13 422:5 linkable 404:3 links 386:16 389:11 list 20:20 21:8 21:14 35:12,14 43:2,7,9,10 65:21 67:21 138:13 139:12 139:16,22 157:20 162:8 165:18 182:6 182:11 188:16 244:6,18,20 247:1,25 248:10,13,15 248:20 249:12 249:19 252:19 253:11 269:11 312:6,15,16 313:4 316:25 364:19 388:15 388:19 468:23 469:3 listed 20:19 22:3 35:1 65:17 142:23 146:9 165:7 180:14 188:1 214:17 238:20 244:9 246:6 250:7 251:15 252:20 267:20,21 325:5 326:1 328:17 332:14 333:10 334:16 388:17,18 listen 39:4,21	106:24 113:5 194:13 329:22 469:21 listening 345:10 listing 268:23 lists 35:2 42:15 238:21 325:25 327:12 literally 26:25 27:21 34:20 93:14 107:24 119:2 123:14 172:21 183:21 206:21 208:12 213:16,22 216:14 217:15 230:23 273:8 279:16 298:15 313:6 332:20 355:24 456:14 458:24 459:18 459:19 literature 35:24 39:16 76:16 79:10,15 121:11,21 124:5 126:8,18 148:22 162:20 163:5,23 164:3 164:11 184:22 185:9 212:19 222:21,23 240:2 242:2,7 242:25 245:1 246:5,7 264:25 271:24 291:4,5 291:6 292:13 373:14 374:6 375:7 382:7 386:17 389:1 407:6,20 409:9 411:22 412:16 416:4 422:9,22 423:3,7 441:15 448:5 451:21 453:15 454:13 461:17 462:15
---	--	--	--	--

464:2	232:16 234:1	66:6,10,13,24	392:19 397:22	97:1 171:8
litigation 1:8	235:6 248:24	68:9 69:10	416:16 419:13	201:22 266:2
13:5,13 56:7	261:1 265:1	70:25 71:7,18	428:5 430:22	266:11,15
67:19 129:14	271:6 274:16	72:5,15,16	431:22 438:20	268:3 306:15
129:17 130:3,4	291:12 293:1	Longo's 67:4,14	440:1 443:10	317:25 348:5
130:20 162:4	295:22 298:19	70:18	443:15 449:10	349:18 380:5
180:20 407:7	302:18 304:24	look 20:17 29:7	454:13,24	443:23 449:23
407:21 409:21	306:7 307:2	30:13 37:4	462:4 469:7,10	465:16
410:3 439:1	325:8,15,17,21	41:7 52:22	looked 26:7	loose 46:15
little 24:24	348:21,24	54:10 56:15	50:18 51:7,12	lost 166:22
29:20 30:12	364:2 367:18	69:16 87:6	65:10 67:8	lot 21:2 62:6
46:15,15 54:11	368:7 380:23	96:3,5,21,25	69:4,6 182:15	70:7,9,10
54:12 59:15,21	381:8 382:3	100:7 102:3	213:22 226:20	99:23 168:22
73:12 77:25	385:25 391:25	121:17 123:1	239:8 241:13	169:2 200:25
115:6 121:1	402:9 406:20	138:12 141:2	242:16 245:18	207:22 224:4
152:2 158:7	407:9 408:3	143:9 144:21	252:17,18,20	237:6 302:19
186:1 205:3	410:25 411:14	147:12 149:3	253:2 266:19	310:21 315:6
230:11 238:7	411:25 412:21	153:25 161:14	268:7 282:23	332:22 341:2
241:23 245:12	413:13 414:25	168:16 171:1,6	312:1 336:13	360:16 403:7
279:10 343:20	416:1 417:24	171:10 173:17	344:10 374:23	418:2 423:6
343:21 352:24	418:20 420:12	174:11,16,17	391:16 398:21	435:21 449:22
355:6 360:19	422:16 423:24	176:9 179:1	409:16 421:16	452:12,14,16
371:14 376:21	424:17 429:10	181:17 182:21	433:18 435:22	452:21 460:7
377:2,24	430:6,10,15,19	183:21,25	436:18 448:6	lots 387:10
399:20 400:3	431:5 432:4,13	196:16 213:13	448:13,21	415:2 451:2
407:16 423:6	434:15 435:7	222:22 226:18	452:3 457:15	loud 115:9
463:7 468:12	436:16 440:6,9	238:21 251:20	457:16	lousy 47:9,15
live 315:9 317:7	445:3,16 446:4	252:23 254:6	looking 28:8,10	low 93:3 149:10
318:18	446:21 449:6	257:18 267:15	28:16 104:4	269:17 446:15
living 287:24	450:10,23	267:19 272:24	130:21 153:2	459:15
315:10,24	452:2 453:6,21	272:24 277:14	172:14 211:7	lower 319:12
374:21 380:22	457:8,24 464:6	290:5 293:14	213:23 239:13	343:15 419:13
LLC 4:10	467:11	301:25 303:23	239:23 242:11	419:20
LLP 3:6 4:19	Logan 5:5	308:11,25	252:22,25	luck 319:4
5:4,10,17	long 24:9 39:5	313:16 316:22	283:17 293:12	lucky 105:1
local 190:3	82:17 83:2	323:6,7 327:21	297:4 301:22	lump 383:1
location 379:13	93:16 117:9	328:22,25	316:9 323:14	lumping 197:20
locations 104:9	152:9 170:11	329:13 337:6	323:15,15	lunch 204:6,21
LOCKE 5:16	174:24 181:22	340:16 341:10	340:13 346:3	lung 11:6 97:15
73:6 88:6	268:18 300:6	341:10 342:1	355:20 356:3	100:24 101:9
89:25 110:18	300:15 329:13	342:25 344:17	365:10 366:18	103:3 106:20
118:12 145:8	341:12 440:3	345:11 347:16	371:10 376:9	122:7,8,10,11
186:12 191:20	469:8	353:8 355:24	390:9 409:17	122:18,20,24
192:3 200:9	long-term 59:10	356:12 359:24	428:24 463:2	123:2,5,7,13
202:1 217:12	longer 39:5	365:2 369:21	looks 20:13 21:2	123:14,18,19
218:5 220:16	94:12 420:2	371:4,5 378:17	29:25 37:4	123:23 126:5
223:25 231:18	Longo 65:11	378:21 387:3	54:12 92:5	143:1,5 150:7

202:23 284:10	45:25	369:16 377:17	168:15 180:4	64:9,16 69:21
364:1 365:4,16	malpractice	392:25 393:1	284:20 285:6	70:11,11,24
368:3 372:3,3	203:18	393:13 396:25	285:12 368:25	73:21 75:19
372:12,16,18	man 329:24	397:1 413:23	370:5,18 371:8	77:6,8 79:24
372:20 376:11	management	416:19 426:24	371:25 372:12	82:22 88:9
376:14 378:1	123:18	427:5 431:14	372:23 374:8	91:13 96:20
379:11,17	MANGES 4:19	431:17 437:13	374:17,25	106:9 107:6,10
380:3,21	manner 47:20	437:19 438:8	375:19 376:6	108:19 112:8
397:18 398:1,2	161:4 409:11	442:18,22	376:10 404:19	118:17 126:22
398:11,15,24	Manuscript	468:6	404:21 458:8	131:23 132:15
399:11 404:3	10:13	markers 423:14	matters 69:2	136:19 142:8
414:15 456:25	Maple 3:21	Marketing 1:6	158:20 168:14	143:15 144:22
lungs 90:18	March 8:10	13:12	266:23 450:25	144:23 145:19
371:24 415:18	231:12 236:1	marketplace	Mc 8:5	146:16 147:13
Luzenac 11:24	296:19 297:23	75:5	MCBETH 5:3	147:25 149:17
438:10	298:15 305:10	marking 26:13	McCormack	150:24 153:20
Lv 366:1,15	308:19	70:1	369:3,8	155:25 158:21
lymph 11:19	mark 16:12	markings 30:14	McDonald	162:24 163:25
123:3 412:17	18:14 66:11,24	30:17	427:15 428:23	163:25 164:7
412:25 427:12	69:19 86:5	Maryland 1:16	McShane 9:6	164:14 168:22
428:9 429:8,20	91:2 355:7	2:7,18 13:10	318:1	169:12,14,22
430:4	465:21	15:2	McTiernan	170:5,25
M	marked 16:14	masses 123:2	232:13 233:9	171:25 172:10
M 3:19 4:17,18	17:17,19 18:12	matches 406:10	233:19 234:8	172:20 174:16
M.D 1:15 2:1	18:24 26:12	matching 85:4	234:11 235:22	175:20,20
6:2,17 7:7,13	28:23 44:20	material 18:22	MD 6:12,19	176:5 179:20
13:22 470:20	45:2 52:3,9,11	159:8 242:10	7:10,14,16,21	180:7 182:5,8
474:11	52:25 54:3	242:11	9:16 206:15	187:4 191:23
machine 405:22	82:7,9 91:4,5	materials 6:21	MDL 1:4 13:13	195:1,8,17,20
Maddie 174:22	95:9,14 98:23	18:3 19:5 20:5	38:2 55:9	196:12,19
174:25	98:24 132:8,9	20:6,19,25	111:3 131:10	197:8 198:12
Magnani 398:18	133:18,20	21:7 23:17	135:1 199:20	198:22 199:16
398:23	138:14,15,17	34:10 42:5,15	MEAGHER	199:19 201:16
main 174:22	138:22,23	65:17 66:2,8	5:10	202:20 203:9
240:23 242:21	213:4,7,9	111:15 112:10	mean 15:13	203:18 205:18
252:21,21	235:17,18	153:24 157:19	20:10,25 21:19	205:21 208:11
mainstream	267:5,7,8	157:20 159:19	21:23 27:1	209:4,11
306:19	281:19,22	468:19	29:6 34:9,10	211:24 215:19
majority 142:23	289:20,22	maternity 93:10	35:3,3,11,11	216:11 217:16
245:20 286:3	296:18,18,23	matter 10:16	35:12 37:1	221:22 224:21
making 28:8	297:13,14,16	13:10 21:1	40:5,24 41:21	225:5 230:22
44:8 115:14	297:18 298:10	27:25 60:7	46:10 47:25	237:5 241:22
234:6 301:7	308:5,7 309:15	67:7 68:25	48:9,14,14	242:13 243:17
303:14 368:4	311:24 312:5,9	102:14 103:7	49:11 50:16	244:8 245:3
469:11	324:15,17,18	120:11 124:18	51:22 52:18	249:15 252:7
malignant 45:20	327:22,24	134:9 163:10	55:9,9,20	253:7 258:7,7
	328:4 366:11	167:9,16	56:22 60:8	260:1 263:1,4

264:15,17	466:6 467:15	446:1,12,13,20	medicine 7:11	142:16,20
265:11 267:16	meaning 28:13	446:25 447:6	34:18,21,22	148:10 201:25
267:18 268:14	104:9 131:23	449:18 450:8	52:16 57:3	207:10 263:8,9
268:24 270:11	133:11 144:13	450:19 451:8	61:1 63:17	395:12,22
272:24 273:15	201:17 238:19	451:23 453:4	93:4,20,23,25	397:19 457:22
281:16 294:11	239:19 266:18	455:2	94:6,18,19	458:5
295:10 301:20	457:11 462:25	mechanisms	95:9,24 96:11	mess 269:7
302:20,20	466:21	422:10 449:2	96:12 98:5	463:3
303:6 310:21	means 49:14	453:4,19 455:6	100:18,19	met 189:25
311:11,14,15	81:23 82:5	medical 15:6	105:2,5 107:7	465:2
313:12 315:8	119:22 169:2	24:19 25:18	143:5 189:1	meta-analyses
318:22 320:1	185:3 187:24	30:4,5,10	201:10,19	238:20 240:11
321:24 323:1,2	321:24 372:17	31:11,17,21,25	205:9 294:8	244:19 251:16
323:7 329:17	405:16 456:1	32:6,11,14	Medline 242:17	267:17,25
333:2,14,20,22	466:8,22	33:3,4,19 34:1	244:17	268:8 368:22
334:2,11 336:5	471:22	37:11 39:16	meeting 157:23	meta-analysis
340:20 341:1	meant 64:16	56:13,18 57:12	meetings 260:21	10:6,12 11:14
342:8,20 343:2	130:19 256:19	81:12,16 95:21	261:23	245:21 246:7
343:19 344:6,9	259:15,16	95:22,25 96:3	member 94:20	265:12 266:25
344:18 346:20	308:12 345:13	96:4 100:8	295:3,6	271:16 277:25
352:17,18,23	388:17,20	104:7,11	members	364:14 388:24
353:2,17,20	406:12 451:13	105:22 117:5	208:14	408:22 417:6,6
354:7 359:10	468:16,18	120:9 141:23	memorize 41:7	417:9,10 425:5
359:12,13,23	469:6	151:23 152:5	341:8 441:12	425:16 454:23
360:14 361:2	measure 333:2	152:10,18,22	memorized	455:3
363:7 367:19	340:22 363:22	153:15 154:7	36:25 37:5	Metals 10:24
370:21 372:4	403:5,17	154:16 155:10	memory 37:9	393:16
372:19 373:24	405:15 406:2,6	155:16,18	68:25 380:10	meter 376:1
376:3 379:2	406:10 460:25	156:4 157:3,8	424:21	404:20
380:7 382:5,20	461:13,14	158:9 159:7,20	mention 292:12	method 244:23
383:23 386:23	measured 406:9	161:12 162:5	458:6	363:4 421:5
387:2,2 392:11	measurement	162:19 163:21	mentioned	methodologic
392:13 401:13	404:1	164:10 165:5	46:14 154:22	191:9
401:14 402:25	measurements	165:21 166:25	162:13 259:2	methodology
407:1 409:19	391:12	167:21,22	280:16 331:13	143:19,25
409:23 412:8	measures	168:3,17	339:22 363:17	238:9 243:3,6
415:13,19	239:15,23	170:23 176:14	397:23 469:4	243:12,20,22
419:4 421:15	392:23	177:8 178:22	Merlo 228:23	243:24 244:13
425:6 433:15	mechanical	179:7,14	Merritt 351:12	methods 143:18
435:11,21,21	468:1	188:20 189:6,8	meso- 137:2	143:22,22
435:22 437:7,8	mechanism	190:15,19,20	meso/asbestos	144:7,13
443:23,25,25	165:3 281:17	194:9 215:3	207:14	253:25 266:13
445:14,19	384:7,20	222:4,21,23	mesothelioma	291:10 292:21
448:13 449:11	385:23 414:16	223:16,17	11:7 55:15	404:10 448:8
452:23 454:13	415:23 417:14	228:12 229:21	124:6,10,13	metrics 405:5
455:9,10 459:2	418:2,17	408:12 412:16	125:19,21	MHS 6:13,17,20
459:6,8 463:3	433:20 443:11	436:9 468:8	128:25 137:3	7:10,17,21

9:16 95:2	385:22	misrepresenting	331:12 347:19	346:14,17,18
206:15	mine 21:22 85:7	161:22 330:5	349:17 365:11	349:14 351:13
mic 14:9	85:9,12 95:6	misrepresents	386:20 397:24	morbidity 40:21
Michelle 3:4	153:2 188:17	295:24	402:22 442:12	40:23
53:6	208:12 215:25	missed 100:5	448:18	morning 14:2,3
microgram	335:19 348:20	182:16,22	model 24:21	17:13 19:15
404:20	388:5	366:10	178:19 450:3	439:3
micrograms	mineral 74:2	missing 199:8	modern 8:19	morphed 275:8
375:25	75:25 76:13	misspoke	290:2,18 388:2	mortality 10:9
Microphone	120:4	126:22 345:12	418:8	40:21 41:2
14:7 89:10	mineralogist	misstate 453:8	modifiable	366:3 367:3
377:22	73:10 119:15	misstates 20:23	263:19 264:2,3	389:5,8,18
microscopy	120:4	67:16 88:7	modification	395:1
11:17 427:11	minerals 73:25	129:19 132:12	347:4	mother 403:24
middle 151:12	120:15 125:24	150:22 151:7	modified 334:9	MOTLEY 4:10
284:1 294:4	minimal 456:23	153:17 172:12	modify 340:8	mouse 102:16
midpoint 351:7	457:4,21	176:3 224:2	mold 203:17	107:22,25
migrate 281:3,7	minimum 391:2	225:3 256:17	molecular	253:9,9
411:11,23	minus 420:22	264:4 265:2	253:20 255:13	mouth 58:12
412:17 415:18	minute 25:24	272:17 274:1	255:16	mouthful 310:3
416:7 428:8	200:13 247:7	275:5 276:4	moment 24:25	move 19:3 39:7
429:7,16,19	251:1 286:15	279:8 298:21	29:10 34:2	46:17 101:17
432:3,10 433:7	293:2 299:22	299:3 315:5	44:11 151:23	151:15 161:7
434:1 435:1,24	299:25 318:2	323:21 336:22	209:25 216:6	176:7 190:14
436:13,25	361:25 369:15	429:14 432:5	238:8 241:7	280:8 310:6
449:16,25	minutes 299:19	434:3 436:17	244:17 256:4	383:17 398:5
452:18 453:20	377:1	437:4 449:7	298:10 355:15	398:13,17
migrated 412:24	misclassificati...	misstating	355:16 365:7	movement
migrating	387:15 461:9	279:14	402:23 438:23	312:7 314:18
435:17	misclassify	mistake 287:5	440:1 447:9	moving 8:23
migration 254:5	461:12	292:11 293:18	464:18	9:10 280:3
418:16 422:12	misdiagnosed	mistaken 67:6	money 179:23	296:25 308:18
425:20 439:7	395:12	misuse 295:16	179:24	309:2,2,22
441:16,25	misdiagnosis	295:20 298:13	monitors 404:19	MSA 40:4
448:7 452:15	395:22 396:6	310:17	monogram	166:14 173:1,2
MILLER 5:9	misheard	MITCHELL	259:6	173:4,16
27:6 53:6,9,12	307:16	3:13	monograms	174:21 175:3
53:16,20 67:17	misinform	mixed 421:19	259:6	175:18 176:1
86:5 111:6	306:2	450:1	monograph	176:12,20
112:17 116:15	mislead 274:2	mixture 454:12	10:23 259:8,9	177:6,14 178:3
116:18 132:14	misquote 280:17	mm-hmm 25:3	259:9,10,19	178:4,9 180:12
132:19 204:5	misreading	69:24 77:20,22	401:1	180:18 181:7
348:20 440:13	332:8	144:3 255:25	monographs	181:12,13
465:20	misrepresent	256:6 259:11	239:3 259:23	182:1 185:14
million 263:1	329:20	283:25 295:2	month 231:12	185:18 186:3,9
Mills 351:12	misrepresenta...	309:1 311:10	months 264:21	186:23 187:1,5
mind 86:13	310:19	314:1 320:5	Moorman	187:18,19

191:15,16,18	109:15 135:18	85:20 92:4	Nicole 309:8	27:25 28:7
192:1,7,16	271:25 273:13	275:17 300:13	nicotine 404:23	29:5,11 31:12
193:10,11,25	296:9 297:10	300:15 326:13	405:18 406:7	287:9 334:24
194:6,8,15,20	297:22 305:10	335:5 438:19	406:10,10	465:22 471:11
194:23 195:1,4	317:3,16,20	neighborhood	NIH 10:13 320:4	notice 2:16 6:11
195:13 197:21	nearby 48:18	387:17	NIH's 320:7	6:15 16:13,18
199:6 200:5,14	nearly 344:15	neither 120:5	NO2 102:14	16:23 17:15
468:8,14 469:6	necessarily	305:23 362:23	node 412:25	27:23 29:1
469:13 470:5	27:25 51:23	neoplastic 34:25	nodes 11:19	notion 411:4
MSA's 195:23	76:17,25	35:6	123:3 412:17	novel 320:1
multidistrict	179:13 204:4	Ness 351:11	427:12 428:9	November 67:1
129:17	216:12,13	442:20 444:17	429:8,20 430:4	67:13 68:9
multiple 171:11	224:16 352:11	Ness's 443:17,21	noise 301:7	69:12 70:20,20
408:5	412:8	444:2,2,5,16	non-exposed	71:1,8,19
mutagenic	necessary	never 10:6 57:21	284:10	NSAIDS 172:23
418:10 444:20	319:13 362:23	184:20 189:10	non-pulmonary	421:17,22
muted 460:2	363:3 391:3	189:11,12	199:2,15,17	NTP 262:2,13
mutual 33:2	456:25 472:3	192:1,6 236:18	200:6,20,23	439:12
	need 24:8 25:1	266:6,12	non-serous	nuanced 217:1
N	53:20 68:5	299:21 300:12	414:18	256:20
N 3:1 6:1,1 13:1	72:20 79:5	304:13 305:19	nongenital	null 352:8,18
N.W 3:7 5:11,18	82:13,18 83:18	364:11 365:5	414:17	382:15,21
name 13:4 15:25	85:25 86:23	365:13,14,16	nonsense 277:1	number 8:13
92:17 93:24	88:22 99:18	366:20,22	nonsmokers	20:3 26:13
107:10 138:11	118:21 133:4	428:3 430:9	379:12	32:14,19 33:1
152:25 174:20	157:23 190:16	438:17 440:17	nonstatistical	35:13 37:6
187:23 188:21	191:9 193:2,25	442:5	357:19	40:23 41:6
285:10 288:24	268:18 299:22	new 1:2 3:22	nonstatistically	97:3 122:15,16
289:9 294:4	300:6 304:4	4:21 5:11	321:7 322:7	122:18 123:1
295:11 312:23	323:12 329:13	13:15 36:20	Nope 346:17	123:15,16
313:8 326:23	338:9 341:13	93:15 182:1,4	354:9	138:16 172:15
366:17 465:1	347:13 372:2,7	303:6 316:23	normal 182:9	179:4 183:12
471:14	386:4,5,6	364:16,16	215:9 226:13	247:22 248:1
named 175:9	397:10 401:23	401:14	normally 15:5	248:11 249:22
names 196:17	405:6 430:15	newly 376:11	North 2:5 13:9	282:13 331:16
253:6	431:19 438:16	Newport 4:6	Nos 377:16	340:13,18
napkin 332:24	440:3 446:1,3	Newton 285:8	nose 58:12	351:7 361:11
334:23	446:10,12,13	nice 93:13	Notary 2:17	375:25 404:12
napkins 331:14	450:18,18	181:23 204:13	474:19	413:25 414:2
332:21 334:17	451:8 461:14	Nich- 83:8	notation 216:2	420:25
narrative 32:19	467:4	Nicholson 7:7	notations 31:10	numbers 37:1
narrow 237:7	needed 191:18	81:7,8,9,16,22	note 29:17 153:4	257:16 345:9
Nate 465:2	194:8 255:9	86:9 87:16	noted 13:18 68:2	346:12,13
NATHAN 4:9	452:13	88:4	128:2 394:22	379:23 380:6
National 262:3,5	needless 78:19	Nicholson's	472:9 474:7	389:7
262:9	79:5 84:23	82:12 83:15	notes 26:3,6,11	numeral 276:15
nature 103:25	needs 83:5,17	84:4	26:14 27:18,24	numerous

451:22	72:8,19 73:6,7	186:10,12	267:18,19	380:23,24
NW 4:11	74:13,17,24	187:20 188:5	268:2,12 271:6	381:3,8,20
O	75:8 78:20	188:11,23	271:7 272:16	382:2,3,16
O 6:1 13:1	79:2,21 82:1	189:2 190:22	273:23,25	383:6 384:9,22
oath 2:18 13:21	88:5,6 89:25	191:20,21	274:4,16,17	384:25 385:15
160:5,24	90:1,15 96:17	192:3,4,10,17	275:4 276:3	385:25 389:9
object 32:17	97:22 98:7	192:20 193:20	278:11 279:8	390:20 391:4
33:7 35:16	104:2 105:10	194:1,11 195:5	281:8,15	391:25 396:8
37:14 80:16,24	106:6,22 107:4	195:14,18	282:21 286:10	396:15 399:23
83:14 112:23	107:16 109:4,9	196:2,10	287:6,25 288:9	401:10 402:9
112:23,25	109:18 110:1	197:13,17	289:2,8,13	402:10,18
113:6 129:15	110:12,15,18	198:7,21 199:3	291:12,13	403:8 405:12
131:17 158:11	110:24 111:5	199:16 200:9	292:4 293:1	406:20,21
260:5 279:13	111:11,19,23	201:12 202:1,5	295:22,23	407:9,10 408:3
310:5,18 326:8	114:4,9 115:25	202:9 203:3	298:19,20	408:4,23
326:17 378:20	117:11,20	205:10 206:19	299:2,12	409:13 410:5,8
425:23 427:25	118:1,12,25	207:18 208:20	301:18 302:18	410:25 411:1
429:2 438:11	119:9 120:17	209:3,9,20	304:3,24,25	411:13,14,18
441:18 448:11	123:25 124:23	210:11 215:16	306:6,7 307:1	411:25 412:1
464:9	125:8,14	216:10 217:12	307:2,7 314:10	412:19,21
objected 154:3	126:21 127:13	218:5,6 219:11	314:25 315:5	413:13,14
objecting 32:5	127:21 128:21	220:16,17	318:13 319:19	414:25 416:1
33:21 35:19	129:9,18 130:2	221:19 222:8	321:10,21	416:13 417:24
83:21 160:10	131:11 132:12	222:25 223:7	322:9,21	417:25 418:19
326:11	134:21 137:22	223:24,25	323:21 325:8	418:20 419:6
objection 15:18	140:23 141:13	225:2,17 226:2	326:7 329:12	420:12 421:6
16:3 18:4	143:3,6 144:20	228:8,13	330:22 331:4	422:14,16,25
20:22 21:17	145:8,16	229:22 230:19	333:19 334:10	423:4,11,24
22:7 23:19	146:13 147:8	231:3,18,19	334:20 336:21	424:15,17
35:7,25 36:24	147:18,23	232:16,17	339:4,17,25	428:18 429:14
38:1,4 39:9,19	148:18,25	233:1,12 234:1	340:6,11	430:6,7,12
40:16 41:15	149:15,23	234:2 235:5,6	342:18 343:18	432:4,5,13,14
42:19 43:20	150:21 151:6	236:25 244:2	345:7,22 346:8	433:13 434:3
47:6,22 49:5	153:17 155:1	245:25 246:10	347:12 352:3	434:15,21
49:21 50:4,21	157:10 158:14	247:24 248:7	352:10 353:11	435:5,7,19
50:24 51:9,19	159:13,23	248:17,23,24	354:4 356:25	436:15,16
54:3,14,25	160:12 166:3	249:6,11,17,24	357:13 360:13	437:3 442:1
55:8,16 56:2,8	168:19 169:13	250:6,21 251:5	361:24 362:10	443:18,22
56:19 57:14,23	169:20 170:15	254:17 255:2	362:25 363:13	444:7 445:3,4
58:14 59:5,12	171:16 172:11	255:15,22	364:2 367:8,18	445:16,17
60:4,17 61:4	174:6 175:5,12	256:17 258:4	368:7,19	446:4,5,21,22
62:4 63:24	176:2,15	260:10,25	371:19 372:1,4	447:18 449:5,6
64:6 65:1,12	178:12,24	261:1,16,24	372:14 373:3	450:9,10,22,23
65:19 66:21	179:8,17	262:19,24	373:17,22	451:10 452:1,2
67:15 68:11	180:25 181:9	263:20,24	374:9 375:8,10	452:20 453:6,7
69:14,20 70:22	182:18 183:1,7	264:4 265:1,2	375:14,20	453:21,22
	184:4,18	265:20 266:1	376:16 380:4	455:7,16,23

456:18 457:8	offering 301:5	29:2,18 30:14	132:2,23 133:6	207:9,13,16,25
457:23,24	offers 309:6	30:22 31:8	133:23,25	208:7,23
458:21 461:10	439:6	32:18 33:11,24	134:18,24	209:16,23
463:20 464:5,6	office 30:11	34:8,12,17,23	135:13 136:5	210:3 212:1,4
466:4,25	154:20,22	35:22 38:16	136:22 137:5	212:15,23
467:11,12	officer 81:12,16	40:10,20 43:12	137:19,25	213:3 214:2,15
470:1,8	official 439:4	43:18 44:1,24	138:3,6,11,14	216:7 217:7,18
objectionable	officiated 2:18	45:16 46:20,25	139:8,9 140:2	218:23 219:18
37:21	Ogburn 312:22	47:17 48:4,5	140:7,10,16	220:4,7 221:12
objector	oh 26:20 43:5	49:25 50:11	143:18 144:11	221:17 222:1
115:12	44:23 53:11	51:14 52:2,19	145:5,25 146:6	225:19 226:11
objections 18:5	58:19 62:13	53:22 54:1,16	146:23 147:1	226:24 227:3,8
32:1,19 75:17	66:13,17 67:23	54:16,22 55:5	147:16 148:9	227:11,12,20
161:4 326:16	69:21 76:22	55:24 56:5,12	149:20 151:9	228:11,16
471:7	81:14 86:15	57:20 58:5,7	151:25 152:5	229:2,10,13,16
objective 35:11	91:1 94:9	58:24 59:9,20	152:16 153:14	229:19 230:6
35:14 41:3	98:19 99:20	60:11,25 61:8	154:3,11,21	230:15 231:9
observed 395:13	112:8 113:17	63:1 64:3 65:8	155:4,9,14	231:10,25
445:22 446:15	128:8 136:3	66:2,7 72:14	156:3 157:8	232:10,21
obstetrics	139:7,8 165:11	73:17 75:3,15	158:7 159:16	233:7,19
105:23 239:4	167:14 170:5	75:23 76:11	162:19 164:21	235:16 236:4
obstructing	174:7 175:4	77:6,21 81:15	165:14,23	236:12 237:10
133:4	182:11,13,17	81:21 82:6,20	168:8,11 169:2	238:7,9,16
obstructive 96:9	186:15 188:10	83:10,24 84:1	170:23 171:6	239:25 241:1
97:17 100:23	209:8 212:15	85:13 87:9,15	171:11 173:13	241:21,25
101:10 103:5	220:25 240:25	88:15,16,20	174:14,24	242:9,23 243:5
obtaining 154:4	242:8 264:15	91:2,10 92:5	175:2,17	244:5,24
obviously 22:13	270:8 276:10	93:2,18 95:1,4	177:16 179:4	247:15,19
97:24 185:15	284:24 297:4	95:8 96:23	179:12,19	248:10 249:8
206:7 241:14	307:20 325:19	97:5 98:3,20	180:15,22	249:14 250:3
244:22 336:25	341:8 342:8	98:22 100:4,12	181:12,15,25	250:25 252:5
338:21 433:21	343:17 348:15	101:2,7 102:6	182:21 183:5	252:24 254:3
434:6 451:15	350:23,24	103:1,14 105:7	185:12,17,24	254:12 255:18
occupational	351:3 352:24	105:16 106:18	186:8,17,21	256:8 257:2,6
395:1	354:21 366:8	107:2 108:2,18	187:1,17 188:1	259:2,22
occupationally	374:12 375:15	109:1,24 110:5	188:19 189:6	260:21 261:7
284:4	383:4 389:18	111:21 113:1	189:11,15	261:12,21
odd 435:9	398:7 406:25	115:22 116:12	190:7,13	262:5 263:15
odds 333:11	410:9 414:4	117:9,15 118:8	191:13 193:14	264:9,13,20
347:8,16 349:9	416:12 424:3	118:19 119:5	193:24 194:4	265:6,12,17
349:15,24	429:22 433:2	119:15,21,25	194:19 195:12	267:5,14
351:12 361:4	437:13 441:3	120:3,8 121:8	196:25 197:5	268:10,17
365:12 368:21	okay 16:11	121:19 122:12	198:17,25	269:14 270:7,8
offer 179:20	17:11 20:10	125:5 126:5,7	199:10 201:15	271:9,12 272:9
342:5	23:15 24:24	128:2,9,13	201:21 202:14	273:18 277:18
offered 158:3	25:23,25 27:11	129:11,24	203:14,20	278:25 279:24
184:11	27:15 28:3,10	130:24 131:8	204:17 205:13	280:2 281:2,13

282:8,11 285:3	367:25 368:14	184:8	400:13 401:8	240:1 243:14
287:2,11,21,24	368:24 369:2	onc 63:14	421:3	317:1 320:9
288:22,25	369:21 370:11	oncological 62:2	opinions 22:5	321:2 343:12
289:6,11,17,19	372:10,22	oncologist	70:16 71:3	372:8 383:11
290:5,9,21	376:21 378:11	115:16,17,18	76:2 88:13	386:18 391:3
293:22,24	378:18 381:23	oncologists	166:15 170:3,5	405:10 406:1
294:1,6,10,24	382:19 384:2	60:20,22,25	183:20,20	406:17 407:6
295:2,2,9,14	385:7,10,20	oncology 63:7	199:2,14 205:4	407:24 446:1
296:3,6,22	386:21 388:14	104:23	205:13,19,21	446:14 450:7
297:6,12,24	389:2 390:9,25	one-page 440:5	206:8 207:11	450:19 451:8
298:2,5,9	391:16 392:16	ones 30:8 61:6	207:14 208:8,9	461:13 467:5
299:10,18	392:24 393:19	69:4 109:5	208:13,17,24	ordinary 205:8
300:20 301:14	394:5 395:5,17	123:11 147:13	208:25 209:18	organ 104:13,14
301:25 303:18	395:19 396:1	240:23 245:2	210:4 211:7,13	organization
303:23 305:5,9	396:12,18,22	247:10 252:7	215:13,13	260:4,9,19
305:12,15,18	396:23,24	252:18,19,19	222:24 227:25	organizations
306:22 307:5	397:4,13 398:5	253:5 259:24	228:2,7,12,18	260:12
307:10,13,25	398:9 399:10	259:25 348:17	232:6 233:10	organize 153:24
309:19 312:4	399:20 400:18	355:9 357:3,5	238:10,11	157:22
312:18,22	400:24 401:16	371:5 376:12	243:16 251:17	organs 428:8
313:3,11 314:8	402:4,14	389:23 390:5	255:4,20	429:7,20
314:8,16 316:6	403:17 406:5	392:22 412:3	256:15 261:22	original 147:17
318:8,18	407:4 408:18	449:11 452:5	286:18 360:4	147:22 148:5
320:14 321:16	408:21 409:2,8	ongoing 128:20	384:19 390:18	149:12,14,17
322:16 324:2,9	410:17 411:21	128:24 129:3	407:7 436:20	257:15 401:11
324:10,11,15	413:4,7,20	Oops 368:8	438:18 462:16	471:12 472:11
327:17 328:8	414:10,22,24	open 181:19	469:18,23	Originally
328:13,15,25	416:3,16 417:5	217:2	470:3	296:11
329:4 330:16	417:23 419:22	opened 69:5	opportunistic	ought 353:21
330:19 332:1	419:24 420:18	operation	410:1	outcome 270:11
333:16 334:15	422:20 425:13	191:11	opportunistic	270:17 371:13
339:1,8,20	427:23 428:22	opined 76:12	409:22	448:1 459:9,20
340:4 342:16	429:6 431:3,12	436:9 453:3	opportunity	outcomes 103:6
343:14 344:3,8	431:21,25	opinion 35:4,10	114:6 193:9	270:9
345:3,20 346:2	432:20 433:4,5	56:17 57:11,21	298:2,6 409:4	outdoor 376:10
346:25 350:3	433:12 437:12	59:1,9 60:1	409:8 427:20	outpatient
350:11 351:18	438:14 440:18	68:15 70:12	opposed 185:1	105:13
351:24,25	441:7,10	71:15,24 72:2	242:21 263:7	outside 134:19
353:7 355:10	442:15 443:2,8	78:2,9 211:25	339:23 401:22	154:20,22
355:11,13,14	443:14 444:15	212:16,25	opposite 359:9	208:25 409:17
355:19 356:20	445:2,25 448:4	219:7 221:5	462:25	ovarian 6:24
357:17 360:2	451:21 454:9	243:1 252:2	Oral 6:11,16	8:17 9:20 11:5
360:11,18,24	456:21 457:4	255:7 256:18	17:15	11:9,13 12:5
363:23 364:7	457:20 458:8	271:3,4 281:2	order 47:1,19	28:14,18 34:24
364:18,25,25	459:23 460:1,8	281:6 306:16	80:5 90:7	35:5 36:6,9,13
365:2,15,22	464:1 467:7	318:8 356:20	176:1 180:12	36:20,23 39:16
366:1 367:6,13	omitted 183:13	370:17 399:21	191:18 238:10	40:13,21 41:11

41:14,21 45:8	247:23 248:5	435:18,25	p.m 89:4 204:20	172:5 324:4
45:20 46:1,22	250:4 263:16	436:14 437:1	204:23 280:11	325:4 336:18
51:18 55:7,15	271:20 272:15	437:10 449:17	280:14 320:18	414:11 474:3
59:10,18 60:3	273:22 274:15	449:20 452:18	320:22 338:13	paid 23:24
60:15 61:2	275:2 276:2	453:20	338:17 377:9	197:21 430:17
62:3 63:12,18	278:4,22 279:3	ovary 282:12	377:12 426:16	pair 388:1
75:6 76:3,14	281:24 282:14	283:9 394:24	426:19 447:10	PAPANTONIO
79:11,15 89:24	285:14,18,21	448:9,16 449:2	447:13 464:12	3:13
109:21 111:3	358:3 359:3	overall 383:3	464:15,19,22	paper 29:21,22
111:10 115:24	368:17 384:8	463:11	470:17,21	30:2 124:12,12
116:7 117:1,4	384:21 385:24	overbreak	page 6:2,10 7:3	144:18 145:10
117:19 118:10	386:11,18	203:25	8:3 9:3 10:3	147:14 182:3
118:21 119:3,7	387:6 388:7,25	overhead 45:17	11:3 12:3 19:4	182:12,13
124:18,22	391:3,11,17,23	85:18,23	21:15 42:9,15	257:15,23
125:2,7,12	392:8 394:2	overlap 245:14	42:20,24 43:10	264:9,14
126:10,15	395:12,23	overlapping	45:13 65:22	276:25 277:1
127:12,20	397:17 398:1,2	404:10	76:7 83:9,14	298:15 315:13
129:7,13 130:1	398:10,14,23	overly 64:6	85:1 87:11	316:21 320:10
131:1,14 132:8	399:10,15,17	287:17 306:8	98:1 99:21,24	321:2 330:5
134:10,16,19	399:18 400:19	Oversight	100:7 140:5,9	332:5 342:15
135:5,15 136:8	401:9 402:8	231:13	171:4 181:19	370:15 371:3
136:17,20,21	406:13 407:8	Overview 102:3	206:17,22	373:10 375:3
137:21 138:8	410:18 411:4	102:10	208:2 209:23	393:5 423:12
140:22 142:12	413:12 415:9	Ovulation 6:23	210:25 211:21	425:1 439:3
147:22 148:17	415:24 417:12	45:8	212:2,3 214:16	444:2,2,5
149:22 150:13	417:15,20	oxidative 102:19	243:6,6,8	papers 20:15
150:20 151:4	420:4 421:8,10	444:18	244:7,10,10,14	92:1 121:20
163:7,13,19	422:24 423:10		246:6 247:16	124:5,21
164:12 165:25	423:15,18	P	247:22 248:4	125:12 143:22
167:3,12	428:7 433:6	p 3:1,1 8:23 9:10	256:5 269:8	143:24 144:6
172:24 187:7	439:9,13	13:1 296:25	271:10,13,14	144:24 145:12
198:25 199:11	442:20 443:12	302:14 308:18	277:14,15	145:14,19,20
200:1,4,6	444:23 451:24	309:3,23	290:22 325:11	145:21 146:7
201:5,9,24	453:5 457:6	311:15 318:25	325:13,13	146:10 147:5
202:22,22	460:11 462:19	319:13	326:1 328:24	163:25 164:1
203:2 209:18	464:4	p-value 295:21	343:21 369:22	164:17 182:11
210:23 211:20	ovaries 273:1	298:14 302:13	393:20 394:6	240:12 298:17
212:22 214:11	280:21,25	305:21 312:8	396:19 397:15	301:10,16
214:12,24	281:3,7,14	316:12,16	399:5,7 400:21	317:3 321:4
215:8 216:21	283:20 284:8	318:19 319:3,9	416:24,25	337:4
217:10 218:3	284:14 411:12	361:8	433:2,3,3	paragraph 76:9
219:9 220:12	411:24 412:17	p-values 295:17	440:11 441:4	101:7 176:9
221:7 226:12	412:25 415:5	301:5 302:5	443:2 444:15	181:22 212:6
233:23 234:15	415:18 416:7	303:5 309:12	473:4	212:14 236:8
234:21 236:17	418:18 422:13	309:25 315:11	pages 26:3 85:4	244:21 271:14
237:19 240:16	423:18 430:4	316:1 317:1	86:9 99:22	277:21 282:10
240:25 241:5,9	432:3,11	P.A 3:14	170:11,11	283:24 284:2

Gregory B. Diette, M.D.

Page 512

292:10 300:24	48:19 49:16,24	113:1,4,10,13	167:11 169:1,6	227:13 228:10
329:21 400:21	50:5,22 51:3	113:16,20,24	169:9,16,24	228:15,22
400:23 414:21	51:13 52:1,4,6	114:3,14,18,21	170:22 171:18	230:5,24 231:8
419:16 420:15	52:13 53:2,8	114:22,24	172:16 173:24	231:24 232:4,9
432:23 469:9	53:11,15,19,22	115:3,5,15	174:13 175:7	232:20 233:2,6
paragraphs	54:8,9,15 55:4	116:2,19	175:16 176:11	233:14,18
243:7,9	55:10,23 56:4	117:14,23	176:20 177:1	234:7,19,24
paraphrase	56:11,25 57:19	118:4,18 119:4	177:12 178:21	235:1,2,15,20
408:10	58:2,9,17 59:8	119:10 120:19	179:3,11,18	237:9 244:4
paraphrasing	59:19 60:10,24	124:3 125:4,10	180:9 181:3,11	246:3,24 248:3
293:6 452:11	61:7,15,20,22	125:16 126:23	182:20 183:4,9	248:9,19 249:1
pardon 76:19	62:8,13,19,25	126:24 127:1,2	184:5 185:4	249:7,13,20
325:16 437:22	64:2,11 65:6	127:16,24	186:13 187:16	250:2,9,24
parens 102:14	65:15,23,24	128:23 129:10	187:25 188:18	251:8,25
102:15,15,16	66:20,22 67:23	129:16,23	188:24 189:5	254:19 255:12
397:18	67:25 68:2,3	130:4,9,13,17	190:6,9 191:12	255:17,25
parent 404:11	68:16,18 69:18	130:23 131:7	191:25 192:8	256:2,3 257:1
parentheses	69:23 71:2	131:13 132:1	192:14,18,23	258:5,16 259:1
211:18,19	72:13,24 74:9	132:16,23	193:4,7,23	259:9,11,14
parents 16:7	74:14,20 75:2	133:5,14,22	194:3,18	260:7,16 261:6
403:23	75:14,20 76:19	134:23 135:4	195:11,15,24	261:20 262:1
Parfitt 3:4 6:3	76:22,24 78:23	136:1,14	196:4,8,24	262:22 263:3
14:1,8 15:22	78:25 79:12	137:15,24	197:15 198:4	263:22,25
16:5,10,16	80:7,20 81:1	138:20,25	198:16,24	264:8 265:5,24
17:21 18:7,10	82:6,16,20,24	139:3,8,10	199:5,17,21,22	267:4,11,22
19:1,9,20,25	83:6,7,19,24	140:7,10,12,15	200:11 201:14	268:5,16 269:2
20:2 21:10	83:25 85:13,17	141:5,16,19,21	201:20 202:3,6	270:4,6 271:8
22:1,15 23:25	85:22 86:4,7	143:4,17,23	202:13 203:6	272:4,5 273:17
24:13,16,23	86:19,22,25	144:3,10 145:1	203:11 204:11	273:25 274:4,7
26:18 27:8,14	87:4,9,10	145:11,24	204:15,18,24	274:21 275:10
27:17 28:25	88:14,21,24	146:22 147:2,3	205:12 206:6	275:14,18,21
29:8 31:2,9	89:2,8,11	147:15,20	206:12,23	276:5,14
32:4,12,18,23	90:12,23 91:7	148:3,20 149:7	207:24 208:22	277:13,21,24
33:11,17,24,25	95:10,12,16	149:19 150:1	209:6,15,22	278:8,24
35:15,18,20	96:22 98:2,10	150:16 151:1,9	210:15,18	279:23 280:5,8
36:4 37:7,15	98:12,14,16	151:11,14,21	211:1,4,6	280:15 281:12
37:19 38:1,10	99:3,7,13,17	152:15 154:2	213:6,11	281:21 282:2
38:13,16,20,22	100:10,13	154:11,15	215:21 216:17	283:2,5 286:14
38:25 39:3,8	102:7,9 103:23	155:3 156:12	217:13,23	287:9,20 288:6
39:12,13,23	103:24 105:6	156:14,18,21	218:1,10,13,16	288:14 289:5
40:19 42:1,11	105:15 106:17	157:2,14	218:21 219:2	289:10,16,24
42:13,23 43:3	107:1,12,19	158:12,16	219:13,15	290:25 291:2
43:8,13,25	108:9,25 109:6	159:6,15 160:3	220:3,20	291:18 292:3,6
44:11,22,24,25	109:12,13,23	160:12,14,18	221:25 222:19	293:7 295:25
45:6,14,15	110:4,13,19,25	160:21 161:2,6	223:5,12	296:21 297:16
46:17,19 47:8	111:8,13,20	162:1 166:3,7	224:19 225:11	297:20 298:23
47:12,16 48:1	112:3,6,15,19	166:10,18	225:18 226:10	298:25 299:9

299:15,24	362:20 363:9	426:22 427:7	239:20 240:19	369:6 372:18
300:3,8,14,16	363:16 364:6	428:2,4,21	241:19 242:3	373:24 375:25
300:19 301:24	366:13 367:9	429:5,11,18,24	243:2 244:6	376:1 406:1
302:23 303:17	367:24 368:13	430:2,13,18,25	248:6 252:24	421:20 423:19
304:6,10,15,19	368:23 369:18	431:9,12,16	252:25 255:23	434:9
305:4 307:4,9	371:22 372:3,9	432:7,19	260:18 265:11	particularly
308:4,9 310:6	372:21 373:5	433:24 434:10	268:3 273:11	108:4 285:25
310:9,10 311:9	373:19 374:3	434:16,23	273:12 283:3,3	414:18
312:11,16,19	374:10 375:12	435:13 436:3	283:6 293:4	particulate
314:15 315:2	375:16 376:13	436:23 437:11	295:1 303:9	10:15 102:14
315:23 318:17	376:20 377:4,7	437:15,22,25	310:25 311:7,7	103:7 120:11
319:21 320:15	377:18,23	438:13,21	313:24 315:12	284:19 285:6
320:23 321:15	378:16,22,23	439:20,22	320:16 321:13	285:12 368:25
322:3,15,24	380:9,17 381:1	440:5,8,11,18	321:14 322:12	370:5,18 371:8
324:1,20,25	381:5,12,22	440:22,25	337:1 387:5	371:24 372:12
325:3,9,16,19	382:10,18	441:19 442:11	399:15 408:9	372:23 373:21
325:23 326:5,8	384:1,13,24	442:24 443:3,5	417:8 467:2	374:8,17,24
326:15,19,21	385:11,19	443:20 444:4	part- 435:17	375:19 376:6
326:24 327:1,2	386:3 389:13	444:11,14	participants	376:10 404:19
328:1,3,13,16	390:3,8,24	445:13,24	249:15 270:10	404:21
329:16,19,22	391:15,21	446:7 447:8,15	participate	particulates
330:2,6,9,23	392:5 393:12	448:3,17 450:5	63:14	370:25 435:1
330:25 331:1,7	394:16 396:11	450:14,17	particle 371:15	parts 217:17
331:20,24	396:17 397:3,6	451:6,20 452:7	388:11,11	219:1 379:1,4
332:2,5,9	397:9,12 399:5	453:1,11,24	particles 215:7	partway 454:22
334:6,14 335:3	399:6 400:1,17	455:12,18	225:23 254:8	party 64:10
335:7,10,13,14	401:12,14	456:4,20 457:3	373:15,15	pass 52:20
335:18 336:6	402:3,13,21	457:19 458:2	412:9,10,16	passed 302:13
337:9,12,17,21	403:11,12	459:1,5,22	428:24 429:7	passing 86:13
337:25 338:4,6	405:9 406:4,23	461:7 462:14	433:7 435:17	passionate
338:11,18,19	407:12 408:7	463:25 464:8	448:21 449:24	306:15
339:7,19 340:1	409:1,25 410:6	464:11 470:1,8	particular 46:9	passive 365:4,16
340:7 341:4	410:16,21	470:12,15	68:21 69:3	passively 284:5
343:13 344:2	411:6,16,20	part 24:20 31:12	70:4 74:1,2	pathologist
345:8,14,24	412:13 413:1	31:13 43:6	92:14 105:24	119:11
346:10,15,19	413:19 414:2,6	46:18 48:10	107:21 133:3	Pathology 11:15
346:23 347:1,2	415:6 416:2,15	60:7 63:6,15	163:10 172:21	427:9
347:18 348:11	416:21 418:12	65:17 70:12	176:9 181:6	pathophysiolo...
348:22 349:1,2	418:24 419:9	79:5 91:25	190:17 194:7	444:22
349:12,16	419:17,19	92:21 93:5	223:13 230:13	pathway 447:25
350:17,20,23	420:16,19	117:6 123:13	233:11 238:6	449:4
350:25 351:5,8	421:1,9 422:6	138:16,17	240:7 270:17	patient 104:24
352:6 353:6,13	422:18 423:2,5	149:11 195:19	277:11 311:19	335:21 405:6
354:5,19 356:6	423:21 424:1	197:22,25	312:2 333:5,6	patients 103:17
357:6,16	424:18,22,24	202:23 221:23	342:4 343:9	104:1 105:21
358:10,16	425:25 426:4,5	222:3 225:19	358:4 359:1	Patricia 328:5
360:17 362:2	426:9,12,15,21	226:8 230:9,13	361:6,17 369:2	patterns 102:21

108:3	143:9,11 157:1	perineum	162:14 173:15	251:17 343:8
Pause 19:12	168:14 169:22	284:20 285:7	phonetic 313:1	410:12 431:18
44:17	170:13 190:21	285:17 411:15	454:24	460:1 461:24
pay 14:19	191:3 196:14	411:17 412:23	photocopying	planning 318:15
158:22	226:7 239:9	433:8 435:2,24	178:17	plans 257:6
paying 139:19	261:5 263:2	437:9 449:19	physical 469:12	320:2
pays 192:9,15	268:22 287:15	period 21:1	physician 34:15	plastic 186:20
PC 3:20	288:19 303:8	41:13 45:19,25	118:22	plausibility
PCPC 5:15	311:1,13 312:2	117:16 420:2	pick 319:9	272:25 273:4
110:14	314:2 316:8	periods 257:24	333:14	418:25 419:4
pedantic 301:3	319:2 332:23	258:9	picked 342:3	433:20 445:14
peer 319:10	333:5 340:19	peritoneal	picking 106:8	446:16,19
408:19	341:3 343:3,23	395:11,22	304:18 343:1	447:17 449:1
peer- 121:20	344:14,15	411:11 433:8	picture 54:11	451:5
257:22	361:9 372:17	435:2 457:25	pictures 51:10	plausible 89:22
peer-reviewed	386:15 404:15	peritoneum	piece 306:16	384:7,20
121:11,16	406:9 409:17	126:2	341:9 357:1,2	385:22 386:14
123:21 124:5	415:19 436:20	person 51:24	357:15,15	414:16 415:23
124:17,21	437:7 442:7	57:7 63:4 80:4	359:19	416:6 418:17
125:6,11,18	447:2 459:14	91:12,14	pieces 244:25	420:10 421:4
126:8,13,18	466:6	106:15 113:6	339:9 470:6	422:10 424:13
127:4,9,18	people's 255:5	172:21 174:20	piles 30:12	425:22 432:10
141:10,11	percent 233:22	256:24 270:16	Pira 398:13	448:8 449:18
144:18 145:13	234:14 236:16	313:7 404:14	place 49:12	450:7,21
147:6 148:21	237:17 301:22	Personal 110:11	78:18 84:22	451:23 453:4
163:4 258:21	379:16 380:20	personally	92:14 93:15	453:19 455:6,9
411:10 416:5	385:13,13	266:11 287:23	97:2 153:23	play 304:17
422:9,22 423:7	percentage 41:4	311:21	294:5 358:2	Plaza 4:5
435:16 436:12	Perfect 19:25	pertain 245:8	387:9 459:14	please 14:20
448:5 454:10	38:16	pertaining	471:5	15:24 24:16
464:2	perfectly 332:12	28:13	placed 412:7	78:25 81:2
pelvic 11:18	perform 268:10	pertains 255:20	449:13	83:19 98:12
107:9 427:12	406:17	Peruses 213:13	places 243:15	104:4 113:2,4
428:8 429:7,20	performed 64:4	282:25 300:7	PLACITELLA	113:17 115:14
pending 13:13	74:12,22	308:12 330:17	3:20	122:4 130:17
99:4 242:1	141:17,20	Pervasive	plain 242:21	141:18 156:12
Penninkilampi	149:20 162:6	305:15	plaintiff 165:16	160:15 162:9
237:25 416:11	265:13 403:18	Petta 174:22	171:13 340:15	167:6 169:6
416:24 454:25	perils 302:4	Pettenati 174:23	PLAINTIFFS	211:8,11
Pennsylvania	perineal 11:12	174:25	3:3	214:22 218:10
5:6	76:20,22,25	pharmacologist	plaintiffs' 6:14	219:17 225:21
Pensacola 3:16	211:17 212:21	119:19	7:5 17:14	246:12 318:24
people 41:4	266:22 271:20	phenolics	18:13,20 26:2	325:18 380:12
46:12 63:7,10	278:4 332:24	186:20	28:24 29:12	464:8 466:12
74:8 104:17	359:5 416:8	Philadelphia 5:6	31:13 45:2	472:2,6
105:14 117:3,7	417:11,14	phone 19:21,23	60:23 76:12	plenty 14:16
123:18 142:3	428:6,20	157:24 162:14	133:18 226:5	143:7

pleural 457:25 458:3,4	poorly 338:21	285:13 433:7	214:19,23	270:18 382:23
plot 327:13	popped 423:13	435:1 439:12	216:20 217:9	439:1
348:10,12	populate 92:21	potentially	218:2 219:8	precise 246:12
plots 327:13	224:15 345:16	401:25	220:11 221:6,6	404:9 450:19
plotted 463:9	population	powder 1:5 7:4	231:16 233:23	450:24
plug 250:15	325:10 345:4	11:9 13:11	234:10,12,21	precursor 422:1
plus 144:24	345:16 356:7	28:14,19 49:3	236:14 237:15	423:18
420:21	370:7 389:6	49:20 50:7,13	240:17 241:7	predated 423:15
PM 370:4	405:1	50:19 51:8,15	241:10 262:7	predispose
pocket 158:23	population-	52:9 53:4,13	263:15,16	417:20
point 42:9 43:24	356:16	53:14,25 54:1	264:1,2 266:17	predisposition
44:9 57:11	population-ba...	54:18 56:16	272:15 273:22	420:4
65:21 93:3	356:23 357:5,8	57:13 59:3,11	274:14 275:2	predominant
99:25 100:5	358:14 360:7	60:2 63:23	276:1 278:22	458:9
106:10 163:12	port 460:8	64:5,25 69:11	279:2 280:23	predominantly
163:17 225:10	portions 173:5	72:6,18 74:16	329:6 368:17	374:24
230:4 253:12	173:10	74:23 75:4	381:19 382:12	prefer 344:14
271:22 277:6,8	position 71:25	76:2 77:12,14	384:5,8,18	pregnancy
314:22 333:3	84:15 99:11	77:15 78:3,10	385:12,21,23	105:21,22
340:14 343:12	153:11 280:18	78:17 79:17	406:14 407:8	106:14,15
343:22 346:4,6	314:8 340:5	80:9,13 84:11	410:22 411:5	pregnant 105:20
346:20 347:8	370:13 433:25	84:16,21 87:17	411:10,22	premise 344:20
348:14 350:12	449:14	89:15,18,19,22	413:9 414:15	preparation
352:24 373:10	positions 314:14	89:24 109:21	414:17 415:4,8	159:18 162:21
374:1,16	positive 226:21	111:2,9 120:21	415:15,21,23	180:23 197:12
455:10 458:23	270:9 271:19	126:9,14	435:17 436:13	202:7
462:10	278:3,15 352:2	127:11 128:17	451:24 453:5	prepare 20:5
pointed 350:4	352:16,25	129:3,13,25	460:11,25	129:21 158:4
pointing 332:6	353:4 359:23	130:25 131:15	462:19 464:4	180:13,19
points 238:2	394:25 417:11	132:7 134:15	powder/ovarian	185:19 186:24
360:15	465:15 466:1	134:19 135:5	163:3	197:24
polarizing 11:16	466:19	135:14 136:7	power 342:20	prepared 8:5
427:10	possibilities	136:21 137:2	practical 303:25	18:13 27:19
policy 8:7 84:10	395:11	137:20 138:9	304:21	29:12 91:10
88:11 224:16	possibility 396:5	140:22 142:12	practice 61:1	92:10 111:17
231:14 235:24	444:21	142:16 148:16	63:16 103:17	124:9 129:12
306:2 368:4	possible 12:4	149:22 150:20	106:19 182:10	129:25 130:25
pollutant 107:25	22:8 51:1 63:8	151:4 163:7,13	307:11 317:14	131:9,10 132:6
pollutants	144:22 256:21	163:18 164:12	317:18	134:14,18
102:13,18,23	285:20 442:20	165:25 167:3	Practices 1:6	155:17 156:4
107:21 108:1,6	possibly 387:24	167:12 187:6	13:12	162:3 171:15
pollution 376:2	post 23:1 29:12	199:1,12,25	practitioner	171:25 172:3
pooled 366:22	post-medical	200:4,10,22	118:16	172:13 196:25
368:21 379:14	95:1	201:3,9,23	Pre-School	197:6 198:18
379:15 380:19	posture 320:7	202:21 203:1	10:17	201:8 205:8
383:12	potent 221:23	209:18 210:23	preamble 425:3	235:23
	potential 59:2	211:17 212:21	preceded 270:11	prepares 24:20

preparing 22:25 23:17 29:19 43:24 202:25 257:19 407:20 421:24	primates 253:8 prime 315:19 Princeton 4:21 principle 270:13 printer 394:14 prior 18:3 43:24 56:6 150:17 236:6 257:19 264:5 286:1 298:7 334:25 429:15 432:5 437:4	proceeding 468:10 471:4 proceedings 19:12 44:17 process 14:17 203:23 244:24 261:4 266:4,8 432:11 433:23 455:15 468:1 PROCTOR 3:14 produce 260:15 260:17 produced 26:10 26:14 370:15 product 33:8,12 33:16 49:13 50:19 51:17 53:17 54:17,23 56:16,18 57:5 72:18 74:12 78:18 79:20 84:7,23 87:24 111:9 137:2 171:8 173:19 176:16 180:6 183:22 274:14 382:11,12,13 382:24 383:5 383:12,13 384:18,23 385:21 407:22 products 1:5,7 8:9 13:11,12 49:3 50:7,14 59:3,11 60:2 63:23 64:5,25 69:11 72:6,18 74:23 75:4 76:2 77:2 78:4 78:10,17 79:17 80:9,14 84:6 84:12,17,21 89:15,18,19,22 89:24 110:11 111:2 120:21 126:9,14	127:11 128:17 129:3,13,25 131:1,15 132:7 134:15,19 135:5,10,15 136:7 137:20 140:22 142:12 142:16 148:16 149:11,22 150:20 151:5 163:19 164:12 165:25 167:3 167:13 187:7 199:12 200:1,4 201:9,24 203:1 209:18 211:17 211:18 231:16 231:17 233:24 234:10,13,21 235:25 236:15 237:15 261:15 262:7 266:19 272:15 273:22 275:2 276:1 279:2 368:17 369:8 383:1 384:6,8 385:23 406:14 407:8 410:23 411:10 411:23 415:8 415:22,23 416:6 436:13 451:24 453:5 460:11 462:19 464:4 profession 34:14 professional 171:8 183:21 183:23 203:10 251:10 professionals 462:3 professor 7:15 34:17 93:6,20 94:6,10,13,14 94:15 100:18 profile 103:16	103:20 profound 460:24 program 47:19 48:16,21,23,24 105:18 230:13 262:4,6,9 programs 46:21 47:1,2,2 48:6 367:15,20,23 368:2 progress 135:8 135:14 451:1 project 153:3,7 155:7 191:16 194:7 230:8,10 projects 156:7 187:3,6,9 promise 124:11 promote 317:14 317:15 418:11 promoted 93:6,7 promoting 421:5 promotion 93:5 proof 433:6 446:19,24,25 447:3,5 proofread 176:8 proper 271:3 322:5 323:17 properly 326:10 proportion 41:8 propose 452:10 proposed 417:16 418:4 451:23 proposition 226:23 227:15 306:12 307:14 propounded 18:2 474:6 prospects 39:18 40:15 prostaglandins 444:20 protect 156:16
present 5:22 17:22 19:24 71:5 75:25 76:13 133:23 238:10 282:14 286:12 409:5 417:5,10 presented 29:13 117:19 presenting 70:17 245:15 presiding 219:4 pretty 24:18 46:5 48:14 104:18 106:25 182:5 195:20 217:1 220:5 221:23,23 238:25 286:24 287:12 293:17 303:3,12 315:4 427:1 460:24 prevent 187:12 preventive 47:1 previous 285:16 previously 182:2 186:3 417:16 418:4 431:21 primarily 106:19 142:25 143:24 primary 117:24 117:25 118:8 118:14 124:13 145:20	private 429:15 privilege 33:9 33:10 156:20 161:25 166:5,7 166:13 177:11 privileged 176:19,25 probably 14:12 20:15 67:8 92:2 94:9 95:25 104:6 113:21 121:13 158:23 167:19 198:10 202:16 202:18 203:17 207:19 240:17 299:7 310:24 311:5 361:7 392:22 410:14 424:8 434:20 450:15 456:1 problem 58:20 104:7,11 105:9 106:3 107:10 133:3 285:22 301:6 305:16 424:6 problematic 102:17 problems 54:20 procedure 283:12 404:13 procedure-rel... 143:14 proceed 19:18			

protective 285:18 421:21 421:22	107:14 141:11 231:15 235:24 267:2 369:24 370:3 474:19	PubMed 92:16 92:17 108:20 121:17	252:16 267:24 268:6 286:17 310:15 324:16 327:12 368:4 390:17 462:16	251:23 257:17 quantified 371:4 quarrel 278:25 279:5,7,10
protein 423:13 protocol 38:19 160:24	publication 123:24 245:14 321:3	pull 18:16 29:21 69:17,17 339:14 363:4 416:17	Pursuant 2:16 push 306:24 pushing 155:23 put 19:17 29:20 30:1,2 35:12 41:22 45:14,16 52:24 58:6 67:21 83:12 86:7,8 97:25 100:12 165:17 169:18 170:14 172:6,7,8,21 175:19 211:1,4 212:8 215:25 216:3 236:7 254:8,9 267:2 271:11 291:19 299:19 309:11 311:13 326:2,3 327:19 328:12 334:12 336:14 340:23 341:13 346:11,13 355:5,11 364:4 365:9 426:25 438:2	query 404:10,11 question 14:20 14:22 23:20 24:12 28:15 32:4,21 33:10 33:15,18,22 36:11,12 37:22 39:7,20 40:1 40:12 41:16 42:12 47:7,9,9 47:23 49:6,18 49:22 50:25 55:1,13,21 56:20,24 57:9 61:16,21 62:6 62:12,20 64:12 65:16 66:19 68:1,4,17 72:9 72:22 73:4,8 73:12,16 78:24 79:6,11,16 80:17,21,22 82:2 83:18 84:5,9,14,20 85:1 90:2,11 96:18 98:8,11 98:13 99:4 103:22 106:7 106:11 107:17 109:11 112:14 113:3 114:23 115:12 116:23 118:3,14 123:20 124:2 125:3 127:14 132:18,20 133:8,9 135:24 137:11 139:20 144:2 145:17 149:1,13 159:4 161:8 164:10 166:2,20 167:6 168:20 169:5,8
prove 446:1,3 446:10,12,13 proved 419:5,12 proven 445:10 445:15,20 450:7 451:8,16 provide 18:23 37:12 55:25 61:6 62:2 63:8 89:18,22 109:17 180:18 187:24 228:5 316:8 343:23 445:21 460:16 469:13 provided 17:7 17:13 71:4 74:11 88:16 115:22 116:5 116:10,11,12 116:13,24 117:18 118:8 134:24 139:23 157:18,21 165:14 167:2 167:23 172:10 180:12 184:10 187:19 189:12 194:24 207:13 provides 63:5 providing 32:5 183:11 184:7 227:24 provoke 102:12 107:15 public 2:17 8:8 10:13 46:21,25 47:18,20 48:6 48:15,23,25 95:2,6 100:22 101:21,25	publications 121:2,11,15 122:8 123:21 124:9,16,17 125:6,17 126:18 127:4,9 127:17,18 141:10,11 142:23 146:9 245:8,10 454:10 publicly 156:10 publish 143:18 315:13 316:21 317:3 320:9 321:2 published 35:23 45:9 92:1 108:10 121:10 121:16,20 124:4 125:5,11 125:17 126:8 126:13 141:23 142:5,11,15,19 142:25 144:12 144:18 145:5 145:13 147:6 148:21 230:16 236:13 237:14 257:3,25 258:20 259:7 264:22 296:10 319:5,8,18 325:22 359:13 369:2,5 373:8 373:14 381:11 391:7 408:19 411:9 427:19 439:3 461:17 463:15	pulled 170:21 172:2 341:17 pulmonary 34:18,22 52:15 57:3 63:11,17 93:21,22 94:17 94:18 96:9,10 96:10,11 97:17 101:10 103:5 104:16,18,19 104:22 106:20 143:5 153:13 201:6,10,18 205:9 pulmonologist 61:8,17,23,24 61:25 106:4 pulmonology 118:22 188:25 purchased 50:6 53:1,4 Purdie 42:6,16 43:14,15,18 45:7,18 351:11 purported 462:21 purpose 43:22 97:12 162:2 252:21 purposes 18:18 22:4 43:19 55:6 56:16 70:16,24 71:3 71:15 78:9 79:16 93:5 111:16,17 168:1 175:18 183:14 188:3 194:21 242:12 251:12 252:2	Q qualifications 212:17 306:20 442:8 qualify 90:3 qualitative 271:25 273:13 273:14 370:21 quality 144:8,8 149:10 239:14	

170:1,12 172:3	385:16 390:21	474:5	24:2,6,21,22	259:18,18,22
173:22 174:9	391:5 400:12	quibble 221:8	25:17 178:20	259:24 260:1
176:17 177:2	401:11,15	quick 44:5	rates 215:8	265:6,8,10,15
177:10 184:19	402:11 403:10	293:14 320:16	226:12	266:8 270:23
187:13,21	404:5 405:14	320:17 377:4,8	ratio 333:11	271:15 272:1,6
188:19 191:6	406:22 407:11	399:25 426:10	347:8,16 349:9	273:12 277:23
191:24 192:5	407:23 408:8	467:23	349:24 361:4	278:14 279:16
192:21 193:2,3	410:20 411:2	quickly 112:1	365:12 368:21	282:17 286:6
199:8 200:2	412:20 413:15	151:15	ratios 349:15	292:17,22
210:14,16,19	422:15,19	quit 218:10	351:12	296:3 298:3,7
210:20 215:17	424:23 427:23	quite 90:6	rats 253:8	299:10 300:18
217:19,21,24	436:10 444:12	434:20 451:3	reach 184:15	301:14,17
218:7 219:6,12	446:23 450:15	quote 29:21 30:2	190:15 191:15	302:8,15 303:4
220:8,11,14,18	456:22 457:20	425:24	194:15 195:13	304:4 305:6,12
220:21 221:15	460:21,22	quotes 169:22	228:16 233:9	306:3 311:14
221:20 222:9	465:4,6 466:15	170:12	279:21 282:12	311:17 312:1
223:1 224:1	questionable		283:9 314:24	313:5,14,20
225:3 230:20	256:13 437:2	R	323:13 418:17	316:15 317:16
231:20 233:15	questioner	R 3:1 13:1 473:2	reached 155:10	348:1 370:9
234:18,22	19:18	473:2	185:21 187:1	373:23,25
241:24 242:1	questioning	rabbits 253:8	193:9,17,24	378:8,10 379:1
243:10 244:12	80:25 83:22	race 236:19	194:23 227:25	379:20 388:14
252:11 254:18	165:19	346:18	228:6,11	389:24,25
258:13,17,19	questionnaire	radiation	396:10 401:1	390:6 395:17
260:6 261:16	404:15	115:18 125:23	reaches 189:7	401:18 413:4
265:21 273:18	questions 27:5	radiolabeled	190:21 191:19	413:16 417:21
274:9,11,24	27:12 32:10	412:10	194:8	420:6 423:22
275:7,19 276:2	37:18 38:25	radiologist	read 42:16	423:22 424:19
276:4,9,12	53:3 82:12,18	119:13	45:22,23 65:18	425:13 428:3
278:7 279:14	83:4,16 86:1	radiology	66:23 68:8,19	428:11 429:2
279:16 286:5,8	114:8,24	143:14	68:20 69:3,6	430:9 431:22
288:5,7 290:25	121:25 132:20	RAFFERTY	70:10 72:14,14	439:14 441:7
291:3 299:1	154:6 163:10	3:14	76:20 77:3	445:5 448:5
304:16 310:7	203:4,23	raise 80:5	83:5,11,17	453:15 454:14
319:20,22	207:22 210:9	raised 396:13	85:24 88:1	462:17 472:2
321:11 330:7,8	217:20 218:25	raising 113:14	97:18 99:25	474:3
332:4,13 335:2	254:24 300:2,4	113:19 115:2	100:25 101:12	readable 469:10
335:8,11,15,17	300:9,22 304:5	range 375:18	102:24 103:9	reader 245:23
335:19,21,22	321:12 326:14	ranges 105:4	111:25 143:11	248:5,11 249:9
337:17,20	329:23 336:3	458:14	166:23 181:24	249:14,22
338:3 339:20	346:22 400:3	rank 93:6	211:8 212:5	250:4,18
340:4 342:12	408:5 430:21	ranked 36:2,3	214:22 225:20	reading 28:1
353:12 354:1	430:24 431:2	36:16	225:21 231:22	69:1 76:18
364:20 371:21	435:25 438:19	ranks 34:24	232:21 236:21	79:9 85:15
372:7 374:14	439:19 440:14	35:5	239:2 256:21	87:6 198:2
375:21 382:16	440:20 456:22	rarely 352:20	257:3,21,22	253:24 287:7
384:10 385:6	467:23 470:11	rate 23:11,13	258:20 259:16	291:16 313:13

389:2 400:5 409:24 420:14 469:20 readings 128:3 reads 96:8 101:7 198:14 ready 44:22 315:19 377:19 real 44:5 133:3 301:5 316:2,3 316:4,5,6,7 399:25 realistic 270:12 realistically 462:11 reality 229:4 383:8,18,25 realize 27:15 99:22 really 21:6 53:7 53:7 68:13 70:10 77:17 93:7,17 105:3 114:10 133:15 149:10,10 180:10 191:23 201:21 210:21 221:13 229:15 231:6 237:6 240:10 252:21 258:19 269:15 293:10 295:10 310:4 331:24 332:17 334:4,4 335:8 340:24 344:20 353:18 358:13 360:11 364:3 374:4 382:6 405:24 420:24 422:4 423:16 425:4 462:9 469:8 realtime 300:21 345:11 450:16 reanalysis 388:25 reason 21:11	39:25 70:6 185:21 192:24 213:16 222:11 223:10 272:19 315:8 341:5 407:4 409:20 410:10 412:6 462:1 472:4 473:6,8,10,12 473:14,16,18 473:20,22,24 reasonable 79:19 87:19 445:8 reasons 332:18 361:7 384:12 REATH 5:4 recall 41:23 67:12 146:3 176:4 197:2,10 389:2,7 402:12 465:6,11 recalled 270:10 receipt 472:13 receive 102:2 received 20:17 21:16 95:2 148:9,12,15 175:23 229:20 468:14 receiving 187:18 469:5 recess 89:5 151:18 204:21 280:12 320:20 377:11 426:18 447:12 464:14 recognize 78:13 239:9 361:12 467:3 recommenda... 406:16 407:2 record 13:4,19 18:18 19:8,11 19:14,16 26:10 27:6 28:22 31:7 32:16	33:22 37:24 38:8 44:14,16 44:19 52:24 53:16,24 54:3 58:5,10 83:22 89:4,7 99:11 115:13 132:2 134:7 151:17 151:20 154:13 204:20,23 234:6 280:11 280:14 320:19 320:22 324:23 331:23 336:16 338:5,7,14,15 338:17,24 344:11 350:15 377:10,13,14 377:15 378:19 393:3 426:17 426:20 431:8 440:10,24 441:8 447:8,11 447:14 464:11 464:13,16,20 464:21,23 467:18 470:17 recording 173:6 242:10 recorded 471:8 records 30:4 167:21,22 177:13 Red 3:22 redacted 161:24 180:5 reduce 32:19 46:22 172:9,23 367:15,23 368:2 redundancy 74:6 redundant 245:14 247:12 Reeds 388:16 refer 265:18 reference 66:2	152:1 238:21 244:18 468:21 referenced 397:14 references 66:10 171:6 364:19 396:20 referrals 104:19 referred 118:22 118:24 120:3 referring 28:23 43:1 65:5 237:7 255:24 282:6 292:7 297:7,10,25 298:21,25 389:22 441:1 refill 88:20 reflect 53:24 97:20 101:14 113:18 115:13 179:13 344:12 349:9 reflected 69:12 Reform 231:13 refresh 65:20 380:10 refusing 33:21 regard 14:5,11 31:17 33:18 35:6 49:18 57:3,11,21 60:1 76:2 84:11 96:16 120:10 126:14 129:6 157:12 159:18 175:24 176:13 177:7 225:14,15 233:10 251:11 256:15 280:18 287:15 310:16 315:25 356:7 370:17,23 373:14 381:18 384:19 409:2 434:1 441:11	regarding 31:24 32:11,14 76:16 124:17 127:10 127:19 173:20 295:16 regardless 280:25 322:11 379:13 region 11:19 427:12 regional 428:9 429:8,20 Registry 8:12 regret 44:8 regulatory 56:14 119:21 209:1 434:12 Reid 388:3,15 388:18,19 389:3,12 390:10,11,12 390:12,13,18 Reids 390:11 reiterating 403:13 relate 187:14 405:20 related 33:4 121:22 123:23 142:2 143:22 199:4 200:8,10 200:12 201:4 257:17 285:22 380:2 relates 1:10 403:9 relationship 127:11,19 153:20 154:17 157:5 200:16 210:22 212:20 273:21 274:13 275:1 376:9 379:10 463:11 relationships 358:1 relative 9:19
---	---	---	---	---

327:18 328:9	32:21 36:2	94:10 111:17	255:23 256:1	70:6 71:19
328:18 329:5	53:23 60:20	129:12,14,21	256:11,18	129:24 130:4
332:14 336:9	63:19 69:3,7	129:21 130:8	257:10,20	131:9 134:18
339:2,15,23	69:15 138:11	130:21 131:4	258:1,11	156:4 162:16
340:9 342:4,6	144:24 145:2	131:20,22,23	264:10,14	165:15,20
343:15,16	152:25 153:5	132:5,8,10,14	267:6 268:7	175:3 180:16
348:13 349:11	158:3 161:8,9	133:24 134:7,9	315:12 324:4,5	180:19 185:19
352:1,16	164:4,17 171:4	134:13,25	325:5 326:1	186:4 202:8,25
353:10 360:20	182:8 197:14	135:1,13	327:12 332:16	203:4 239:4
361:15 363:24	197:22 231:22	138:17 145:25	334:3 336:1,5	257:9 297:11
365:4,5,17	242:22 247:10	152:3 153:16	336:19,23	329:5 374:7
366:19,22	252:19 253:6,8	154:24 155:12	341:13 346:21	407:21 417:10
367:16,21	265:9 283:17	155:17 158:5	355:22 356:4	453:18 454:4,5
368:16 370:17	288:17 296:8	159:19 162:3	356:13,13	repository 92:20
370:25 371:11	296:12 311:21	162:22 163:21	357:17 360:4	represent 18:19
371:12,16,23	380:6,7 389:11	163:21 165:7	360:12,16	18:21 28:17,18
372:11,22	392:17 395:24	168:2,18	364:23 366:19	40:8 45:3,4
373:16,18,20	425:2,6 426:1	169:11,12,17	367:2 378:4,7	52:7,24 53:3
374:7,23 375:7	426:7 432:17	170:4,10,14,14	378:25 379:8	55:14 81:12,15
375:18 377:25	460:4,6 463:21	171:12 172:5	390:18 393:4	84:2 98:3
379:16,23	468:2,14	172:12 173:5	395:19 396:13	101:19 103:11
383:3 387:17	remind 113:7	173:11,16,21	397:15 399:16	103:13 108:14
397:25 398:10	160:5	174:4,10	408:18 421:24	139:11 224:23
398:14,21,23	reminded	175:19,24	421:25 432:9	225:9 232:10
399:10 400:5,7	455:13	176:1,14,24	443:21 447:21	235:21 236:5
relatively	reminds 68:24	177:8 180:13	460:5,8,16	289:25 291:20
343:23	removed 280:22	181:13 182:22	468:2,5,10,20	292:8 297:21
relevance	render 256:13	183:15 184:9	469:15,18,23	308:14 312:5
315:25 342:6	rendered 161:13	186:24 193:12	470:7	317:1 325:23
relevant 145:22	repeated 420:1	198:6,9 201:8	reported 1:25	325:24 327:9
211:15 238:13	repeatedly	203:21,24	9:21 270:11	327:17 343:11
reliable 416:4	461:23	205:4,6,7,7,16	291:5 337:2	350:14 364:12
reliance 34:5	rephrase 408:6	206:14,14	339:6,9 371:14	387:4 397:13
43:2,7,9,10	422:19	208:9,23	372:11 375:6	399:12 438:8
65:21 165:18	replace 309:7	209:24 210:4,8	428:20 463:19	438:25 442:19
388:15 468:23	replacement	210:25 212:2	reporter 2:17	representation
relied 65:18	315:16	227:25 228:6	13:19 188:9	54:4 324:23
381:24 440:17	report 6:19 7:16	232:21 233:8	279:12 440:21	representative
rely 71:9,21	10:21 21:12	235:13 237:2	471:1,2,24	84:15 86:9
72:1 166:15	22:5 29:19	238:11 242:12	reporter's	represented
233:3 255:10	30:8,11 42:6	242:16,23	471:13	242:15 339:24
381:23 390:18	42:14,22,24	243:11,23	reporting	386:8 387:4
relying 68:14	43:7,24 66:4	244:7 248:15	247:13 270:9	representing
70:18,25 71:6	66:10,23 67:14	248:18,22	reports 20:14,15	55:18 221:1
71:10,17 167:5	68:8,19 70:21	249:3,8,21	21:5,20 22:11	223:14
remember	70:25 71:4,7	250:3,17	60:6,12 66:18	represents
22:10 27:22	75:24 76:4	253:17 255:19	67:4,21 69:12	17:25 18:5

21:15 28:7	202:4 230:8,13	rest 237:18	455:14 462:15	40:24 41:1,5
81:24 224:7	242:19 262:6	244:13 414:21	463:8	42:2,4 44:1
327:11 382:9	262:10,12,15	420:14	reviewed 6:22	45:12,24 46:4
reproduced	294:14 298:15	result 305:25	19:5 20:5,6	46:7,10,17
26:16	306:1 308:17	352:2 382:14	42:5,6,15	47:10 49:3,17
reproduction	309:21 310:12	resulting 413:9	43:21,23 59:7	50:6,18 54:10
439:4,6 471:22	313:11 314:19	results 69:10	59:24 65:18	58:1,13,16,18
reproductive	319:7,15,24	70:18 71:18	66:3,8 77:9	58:23,24 61:10
36:7,15 61:2	367:10 369:13	256:13 287:3	80:18 82:13	61:25 62:7
reputation	369:14 403:3	291:5,7 292:14	83:16 111:16	63:16,20 65:10
230:4	444:24	292:15 293:6,9	121:21 124:15	66:15 67:11
request 16:24	researched	366:24 395:20	157:21 244:18	70:3 71:21,22
18:20,21 26:11	119:6	407:25	245:1 246:8	72:4 73:11,23
26:17 31:3,15	researcher	retain 194:15,20	247:2 250:19	74:6,10 75:19
31:24 32:25	34:16 224:13	retained 7:5	251:11 257:23	77:5 78:15,16
97:1 99:15	researchers	51:5 55:5,13	357:17 373:13	79:24 80:1,2
164:6 192:16	215:6 225:22	108:21 109:16	374:6 378:24	80:12 81:4,6
426:2	226:4 295:16	136:6,6,25	381:16 409:9	82:6 88:3,12
requested	309:14 310:1	139:13 140:21	412:15 438:17	88:13,15 89:14
155:11 199:13	researching	150:18 151:2	448:25 451:22	90:4,8 91:23
231:25	233:8	171:13 195:1	452:17 459:23	92:5,9,12 94:2
requests 6:15	resembles	208:24 228:5	460:3	94:5,14,16
17:15 18:1,6	268:15	242:4	reviewers	95:17,20 96:2
32:1,14 33:7	residency 117:6	retainer 31:20	319:10	96:5,8,15
require 251:10	117:9,12	retention 56:12	reviewing 30:6	97:13 99:4
required 315:12	resisted 273:16	Retire 9:4,12	37:11 67:13	100:17 101:14
362:9 457:18	361:10	retrograde	185:8 407:5	101:17,24
reread 67:6	resonate 215:20	273:3	RICE 4:10	102:10 103:11
rereviewed	215:23	return 472:11	Richard 4:18	103:16 106:18
259:5	resonates	reveal 173:19	11:25 438:9	108:21 110:9
Res 369:11	215:22 216:4	review 10:12,25	rid 311:14,16	110:22 114:8
research 9:8	217:5	11:14 17:3	ridiculous	116:21 119:13
48:24 97:14,21	resources 311:1	19:2 20:21	270:16	120:13,23,24
101:8,15	respect 67:19	39:15 42:4	right 14:9,18	121:1,14
102:11 103:2	respected 260:9	43:18 55:22	15:1,5,8,9,15	122:23,25
103:12 107:13	260:13	60:11 82:18	15:23 16:22	123:10 124:4,8
108:3 121:2	respiratory	83:3 148:22	17:2,5,7,24	124:14 125:5
128:16,20,25	142:3	149:6,9 153:4	18:9,11 20:3	128:1,19
129:2,5 143:1	respond 32:16	154:1 189:9	20:18 21:1,11	130:15 132:11
143:13 145:20	114:17	190:2 212:17	21:19 22:2,10	132:23 134:6
146:8 147:17	response 6:14	222:20 240:2,7	22:16 23:4,10	134:12 135:10
147:22 148:5	17:14 18:12,20	241:16 242:24	24:1 26:6,25	135:25 136:18
149:12,14,17	26:11 28:24	244:15 253:15	27:21 30:1,9	139:1,15,21
149:21 150:19	32:25 417:19	256:10 264:22	30:19 31:1,10	140:13,16,19
151:3 162:20	418:7 440:4	264:24 380:25	31:15,20 33:13	141:2,4,9,22
163:4,22,24	465:18	411:22 422:8	34:13 36:5,19	142:5,10
164:11 190:17	responses 18:1	427:20 448:4	37:5,8 39:14	144:15 145:2

Gregory B. Diette, M.D.

Page 522

145:12,19	276:24 278:16	389:24 390:17	126:14 172:23	423:9 446:15
149:13 150:24	280:2,21 282:5	391:22 393:9	214:6,6,16,24	451:18 466:8
151:8,22,24	282:8,19 284:2	393:18,25	215:4,5 216:21	466:23
152:3 154:9	284:15 285:1,5	394:7,8,15,19	217:10 218:3	risks 235:25
155:13 157:3	286:15 287:12	394:22 396:18	219:8,24 220:1	327:18 336:9
157:15,19,24	288:15 289:6	397:22,25	220:12 221:7	337:2 339:2,15
159:2,25	292:7,24	398:17,19	221:16 222:5,6	342:7 360:20
162:10,18	293:19 295:3	399:2,20 401:7	222:18 223:18	361:12 363:24
163:2,17 165:5	296:16,17,17	402:23 405:4	223:19 225:15	365:4 367:16
168:10,17	298:9 299:18	405:18,24	231:15 233:22	367:21 368:12
169:23 170:9	300:24 301:25	407:17 408:17	234:14 236:16	368:16 370:18
170:19 174:17	302:3,20 305:5	408:20 411:8	237:17 238:3	372:11 375:7
177:23,25	305:11 306:16	413:2 415:7	240:18 248:1,1	375:18 379:23
178:6 181:4,18	307:22 308:5	416:22 418:2,3	262:18,23	400:5,7 401:2
182:10 189:18	310:22 312:25	419:21 420:8	263:9,11,13,16	Road 2:6 13:10
189:19 191:2	313:14 314:5	424:8 425:8,19	263:18 269:10	Roberta 442:20
194:13,16	316:3 317:7,24	426:12 427:8	285:13 328:9	ROBINSON 4:4
198:5 203:16	319:1,6 322:25	427:19 428:13	328:18 329:5	role 12:4 48:10
203:20 205:2	323:17 324:11	428:22 429:19	332:14 339:23	117:25 154:21
206:13,18	324:12 327:5	429:21 431:4	339:24 340:9	288:18 294:19
207:6,25 208:6	329:10 330:1	434:6,17,24	342:4 343:15	442:20
208:17 209:11	332:10 333:23	436:24 438:7	343:16,24	roll 38:7
210:7,14,24	333:24 334:2	440:12 442:4	348:13 349:11	Roman 276:15
211:21,23	338:7 340:25	448:20 449:11	352:1,16,16	Ron 309:7
213:24 214:5	343:2 344:9,22	454:11,17	353:10 359:14	room 353:2
214:10,22	344:25 345:3,9	455:10 456:5	359:23 361:4,4	ROSEN 3:5
215:11 216:9	347:11 348:16	456:21 458:23	361:13,14,15	52:5 85:19
216:18 218:20	349:14 350:2,4	460:13 461:4	361:15 362:15	86:13 139:6
218:20,22	352:7,18	462:22 465:13	362:17 364:11	393:3,9 427:4
222:20 224:5	353:17,19	465:17 466:8	365:5,17 366:2	437:21,24
225:5,25	354:8,18 355:1	466:17	366:19,22	Rosenblatt
226:17,17	355:5,16,19	right-hand	368:15 370:25	351:13,23
227:5,6,20,20	356:10 357:2,7	327:14 419:13	371:11,12,16	rotate 117:7
228:4,25 232:5	358:12,17,23	Rigler 65:11	371:23 372:18	ROTH 3:20
236:23 237:5	359:15,18	66:6,11,15,24	372:23,25	Rothman 8:20
239:18 242:6	361:16 362:6	67:14 68:9	373:16,18,20	287:21 290:9
242:15 247:21	362:13 363:3	70:25 71:8,18	374:7,8,15,23	292:9 317:13
253:22 254:4	365:24,25	72:5,15,16	376:6 377:25	322:11 361:2
254:24 255:13	366:16,25	Rigler's 69:10	379:17,17	456:2,3 463:8
256:20 257:19	367:5 369:7	70:19	380:20 383:3	463:8,16
258:25 261:18	370:16 371:3,5	rings 303:9	387:17,20,20	Rothman's
264:19 267:5	375:5 376:14	rise 387:24	389:5 398:1,10	288:8
267:14,23	378:14,22	risk 6:23 7:23	398:14,21,23	roughly 376:23
268:24 269:7	379:6 380:1	8:8 9:20 10:5,9	399:10 402:1	route 284:21
269:20 271:2,9	383:9 384:17	45:8 59:2,10	411:5 413:11	285:7 413:11
271:12 272:23	385:10 386:10	79:8,10,15	414:17 417:15	row 333:6
273:6 275:8	387:2,20	80:5 125:12,18	421:18 422:23	rows 334:12

RPR 471:18	sat 179:9 338:23	277:22 278:22	168:3,17	screen 13:7
RR 350:25	saw 60:19,21	284:2,2,3,17	170:24 175:14	85:24 378:17
351:1 367:3	65:10 69:17	300:25 302:3	178:22 179:7	Screening 8:11
RRs 336:7	94:9 182:11	302:21,21	179:14 188:20	se 30:21 48:24
rubbing 154:13	230:1 231:20	331:10,15	189:7 190:15	65:3 185:2
rule 251:19	257:8 296:8,9	340:17 365:15	190:19,20	195:1 425:12
315:11 361:23	299:4 307:3	369:23 386:14	223:22,22	search 92:17
362:3	311:4,22	393:25 394:19	264:23 315:3	147:4,11 164:3
ruled 396:4	312:23 313:22	397:16 401:20	317:8 381:25	164:18,20
ruler 353:21	314:16 409:2,6	417:5 419:24	468:8	240:1,8,22,24
rules 160:20	421:24 429:22	428:6 429:19	Sciences 32:11	241:1,4,8,17
166:6 316:19	saying 37:2 40:7	437:23 439:24	32:15	242:2,7 313:6
317:4,9,11,12	53:14 82:25	scale 353:17,19	scientific 30:7	searched 246:21
run 208:17	146:3 164:5	361:17	30:10 31:11	searches 162:24
237:22 314:21	182:13 189:24	scanning 11:17	35:24 37:11	238:21,22
353:21	191:5 219:15	427:11	39:15 42:18	240:5 241:19
running 437:17	220:2,8 224:6	scenario 193:14	56:17 57:12	sec 282:22
	224:22,22	194:4,5	59:25 70:13	sec- 100:7
S	227:1,10	schedule 158:2	120:9 146:8	second 19:8
S 3:1 6:1,8 7:1	237:13 243:18	Schildkraut	162:20 176:13	44:14 66:1,9
8:1 9:1 10:1	251:19 277:4	351:14 413:4,8	177:7 189:9	96:24 97:13
11:1 12:1 13:1	279:6 295:1	413:20 436:4,5	209:1 212:18	100:7 198:10
Saed 255:21	305:2 311:17	scholar 242:20	222:21,22	214:12,16
256:2,15 257:4	330:1 334:2,3	242:20 244:18	228:7 229:21	225:19 274:22
Saed's 256:10	351:20 359:8	school 95:1,21	234:11 257:3	290:12 321:14
256:11 257:21	365:12 368:11	95:25 96:4	260:4,9 291:4	330:15 350:15
257:22 258:20	372:16 374:14	100:19,21	291:6 295:19	351:3 363:18
safe 46:5 407:22	383:16,24	101:21,25	303:25 304:21	366:7
safety 84:7	385:4 387:19	117:5 215:3	319:17 342:14	secondhand
234:10	424:5 449:18	222:4 223:17	360:25 374:6	10:5,11 102:14
salad 268:25	450:12 455:2	294:8	375:7 407:24	107:22 363:20
269:4,5	456:15 460:4	schools 223:16	411:9 416:4	363:22,24
sales 1:6 13:12	says 23:12 49:9	science 24:19	436:12,24	364:1,10
327:11	50:20 54:18	25:18 31:18,21	437:1 448:5	365:14,23
saliva 404:25	55:3 66:10,16	31:25 32:6	453:15	366:3,20
406:3	76:11 84:1	33:3,5,20 34:2	scientist 58:25	367:10,16,23
sample 248:25	85:9 95:23	56:14 151:23	120:4 230:18	368:2 371:13
249:2 316:8,10	96:25 97:13	152:5,10,18,22	231:2 289:1,12	376:14 377:25
341:7,11,16	100:14 102:6	153:15 154:8	450:18	379:10,13,18
342:2,13,16,23	102:11 103:7	154:16 155:10	scientists 59:23	380:2,21 393:8
Samuel 11:20	113:7 114:3	155:16,18	60:13 222:22	402:14,19
Sander 288:22	121:10 189:7	156:5 157:4,8	223:4,6 295:16	403:3,6,9,14
289:1 290:12	191:7 206:14	158:10 159:7	306:23 307:19	403:22 405:11
297:21 317:13	207:16 214:19	161:12 162:5	307:20 310:13	secretary
sanitary 331:14	216:16 219:5	162:19 163:21	389:3	176:23
332:21,23	220:9 273:12	164:10 165:5	scolding 301:3	section 92:3
334:17,22	276:8,18 277:9	165:21 166:25	scoring 250:18	176:7 243:20

243:22 244:14	327:15 328:6	111:9,21	57:6,9 72:1	162:5,17
268:13 278:12	328:10,14,17	205:25 213:12	91:14 112:1	180:18,22
282:9 305:15	328:20 329:2,4	213:17 214:1	207:20 239:5	189:12
357:22 366:19	329:8 330:13	222:21 226:5	283:16 341:14	services 11:22
416:23	332:22 336:24	238:3 258:6	361:21 388:10	13:5 117:7
sections 181:21	344:23 345:1	259:19 281:9	390:16 403:1	154:19 161:13
see 16:22,25	353:24 355:13	281:10 299:21	415:2 447:23	180:12,24
23:7 26:4,7	359:4,7,24	300:12 304:13	451:1 460:7	181:7 186:23
37:4 42:6	364:17,22,25	311:6 320:6,7	462:7	187:18,19,24
44:12 45:10	365:3,7,15	320:25 329:24	sent 67:19,22	192:15 194:6
50:20 54:11	367:4 375:22	367:17 368:17	153:4 161:23	194:24 195:23
58:7,19 59:13	388:15 391:11	376:7 386:12	sentence 46:7,15	197:21
63:7,10 66:5,6	392:20 394:19	386:13 387:22	92:24 211:9	set 24:14 44:3
66:12,13,15,25	395:3,7,15	391:6 411:19	212:14,15	47:1 86:24
67:9 69:6	396:1,7,9,20	411:21 412:2	215:1 223:13	89:13 145:14
74:22 79:14	396:21 397:20	412:15 413:3	227:18 235:14	157:24 205:15
81:4 96:5,6	397:25 398:3,6	415:12,17	276:7,18,20	231:10 243:11
100:1 102:3,10	398:9,14,19,25	416:11 422:4,8	278:14 280:1	243:23 286:15
103:17 104:6	399:3,7,8	423:8,12,16	291:24 302:3	291:5 292:13
104:16,17,18	400:24 401:5	427:22 431:24	306:10 323:2	317:11 324:3
104:24 105:9	402:4 409:17	436:2,24 437:1	366:24 372:7	454:19 460:9
105:24 117:3	410:9 413:17	437:8 438:17	374:20 428:5	471:5
118:21 121:18	414:14,19,22	440:7 442:5,13	sentences 182:1	setting 105:13
122:14 123:12	418:22 419:23	442:25 448:25	272:25 306:14	105:14 353:1
124:9,11 134:2	424:12,16	451:21 452:9	separate 110:2	settings 51:11
138:13 143:12	425:19 427:13	452:22 453:2	138:18 241:4	seven 331:11
144:22 148:8	427:17 429:23	453:16 454:1,1	332:24 388:23	345:12 467:13
153:6 157:20	432:23 433:10	454:12 459:14	separately 18:14	severe 287:12
168:5 170:10	436:10 438:6	sees 104:25	136:24 178:18	SEYFARTH
181:20 188:4	438:14 441:5,8	113:21	241:8	5:17
196:15 206:7	441:10,12,14	segment 172:22	separating	Shannon 175:9
213:13 214:8	443:2,8,10,14	select 244:5,25	301:6	shape 91:18
214:11,17,20	443:15,17	333:11 344:3	September	168:23 169:11
218:24 221:3	444:15,25	selected 170:4	11:23 140:3	169:12 170:24
224:24 236:2,3	455:5 456:9	327:11 344:4,5	438:8,25	170:25
236:9 237:23	457:17 462:16	345:4,16	sequence 20:25	shaping 175:24
254:7 270:23	seeing 41:23	selecting 245:24	seriously 434:20	share 22:22
271:12 272:9	105:17 107:7,8	344:12	seriousness	71:16,17
272:11 277:10	108:14 422:3	selection 251:11	133:11	156:25 165:4
283:21 290:3,7	seeks 166:4	261:4 345:21	serous 417:12	185:17 228:1,7
290:10,15,19	seen 16:18,20,20	sell 50:13 79:19	serum 423:13	228:12,18
296:6 297:2,4	35:1,1,23 36:1	80:13 87:19	serve 108:22	242:23 261:22
301:12 302:1	36:1,3 51:10	385:12	served 18:6	309:19 391:1
305:16 309:17	51:12 60:5,8	selling 87:24	203:5 340:13	438:1 441:22
312:1,20	64:23 65:2	send 164:23	service 8:12	shared 75:15
313:21,23	67:3 74:18	senior 370:13	105:2 107:7	208:13,24
315:15,20	83:3 110:22	sense 46:8 56:23	157:18 159:20	209:17 441:20

Sharfenstein 313:1	378:4 shown 215:8	357:20 428:10 significant	447:20 458:16 461:23	366:20 367:11 367:16,23
Sharfstein 313:2	226:12,17,21	233:21 234:13	sir 141:6 324:13	368:2 371:13
314:9,19	415:17 416:10	236:16 237:16	SIRs 400:8	376:14 378:1,7
319:16,23	435:24 437:6,8	237:21 269:13	sit 304:14	379:11,13,18
sharing 71:16	shows 236:14	271:19 278:3	site 417:13	380:2,21 393:8
205:14 212:25	237:14 281:10	278:15 285:25	sitting 15:1,10	393:8 402:14
SHAW 5:17	281:18 353:10	286:21 287:4,5	68:4 69:9	402:20 403:3,6
She'll 385:8	423:17 435:22	291:8,10	121:14 363:10	403:10,14,22
sheet 308:15	436:2	292:15,21	412:14	405:6,11,22
472:5,6,9,11	sick 104:13	293:15 302:13	situations	456:24,24
474:8	sickest 104:12	303:15 305:25	135:22	smoked 404:12
Sheraton 2:5	side 60:23	309:6 318:11	six 57:24 319:2	404:21
13:9 15:2	308:20 327:14	321:8,9,19,20	401:3	smoker 379:19
Shih 421:25	Sidney 7:22	322:7,8,19,20	size 191:1	380:22
Shih's 421:25	214:3 215:14	323:10,19,20	248:25 249:2	smokers 10:6
Shirm 309:8	224:24 225:5	356:22,24	316:9,10 341:7	364:11 365:13
shopping 50:8	225:12 228:16	357:4,11 360:9	341:11 342:2	365:14 366:20
short 19:17	Siemiatycki	365:13 456:8	342:13,16,23	366:23
shorten 349:3	172:7	456:13	343:1	smokey 405:20
426:15	sign 206:22	signing 472:8	sizes 341:17	SMRs 400:8
shorthand 471:1	307:14,24,24	silica 259:7,12	SKADDEN 5:10	snack 204:14
471:2,11	307:25 472:6	259:15	skilled 51:21	snippet 85:6
show 17:17 45:1	signal 301:7	similar 64:14	52:15	snippets 83:22
52:2,20 80:3	358:19 359:8	188:17 245:11	sky 380:15	97:25
95:8 98:22	458:25	280:24 335:24	sleep 34:22	Society 439:5
138:21 139:1	signatories	similarities	93:23,25 94:1	Society's 298:13
154:13 213:3,6	311:18 312:6	285:23 286:9	slice 237:7	sold 75:5
235:16 281:22	312:17 313:23	similarly 49:25	slightly 400:9	solely 302:11
289:19 296:17	314:6	269:18	small 271:18	303:13,14
296:22 311:23	signature 208:1	simple 61:16	278:2 282:13	soliciting 312:14
312:4 331:20	signatures	62:17 64:21	331:16 340:18	somebody 20:20
364:7,9 366:1	312:15	335:20 403:20	342:17,23	49:9 70:14
390:1 392:24	signed 264:10	simplify 201:7	360:21,21,25	83:23 90:21
393:13 396:24	306:23 307:21	421:2	362:15 363:11	97:2,25 104:20
413:20 415:3	312:2	simply 37:12	371:7 420:21	105:19 107:8
431:4,17	significance 9:5	57:9 287:19	451:17	153:3 159:22
432:15 436:6,8	9:13 286:2,19	291:6 292:14	smaller 205:19	160:1,4 173:7
437:12,18	295:17 298:14	293:10,10	361:17	178:1 185:1
438:7 442:18	302:5 303:6	327:19 354:1	smart 311:12	188:16 191:6
462:24	304:1,22	441:1 453:14	Smith 182:12,13	196:13,22
showed 358:4	306:25 309:13	456:6	smoke 10:5,11	224:10,12
463:22	309:24 310:1	Singh 172:8	10:21 102:15	240:6 255:6
Shower 50:1,2	310:17 311:16	single 104:7	107:22 363:20	287:13 293:11
51:8,8,16,16	312:8 314:17	246:16 247:9	363:22,24	324:7 340:20
74:15,15	316:1 318:10	248:13 363:1	364:1,10 365:4	352:24 376:5
showing 9:19	323:5 357:19	371:2 373:9	365:16 366:4	412:23 461:2

Gregory B. Diette, M.D.

Page 526

somebody's 394:14 465:22	78:14 91:18 92:21 110:8	spaces 174:19	231:4 233:4	started 28:16
someone's 191:17	123:16 130:20	speak 98:6 113:13	235:8 261:2	29:4,6 189:17
somewhat 221:18 256:20	144:16 146:15	speaker 115:11	314:10 430:8	250:14
soon 93:17	152:13,16	speaking 64:19	435:6	starts 48:25
113:25 205:5	158:1,4 168:25	109:20 115:9	speech 37:17	225:20 236:9
sophisticated 64:15	175:14,15	142:2 207:3	98:7 114:16	292:10 299:20
sorry 23:21	176:10 181:23	213:15 260:14	193:6 442:1	394:9 395:9
26:20 28:4	185:3 195:2	301:17 326:15	speeches 37:24	419:21 432:23
43:3 45:3	211:24 230:7	389:14	92:13,19 113:3	state 2:17 38:3
48:12 58:19	241:3 252:7	special 9:9	114:15,15,18	45:19 75:23,23
69:25 76:22	257:11,17	292:12 301:1	115:14	111:3 112:17
85:3 87:9	266:25 267:3	308:17 309:3,9	speed 454:16	272:10 414:14
97:10 99:19	268:24 292:19	specialist 120:4	spell 423:25	432:2 472:3
112:20 116:12	297:3 313:21	188:25 254:15	spend 152:2	stated 146:1,10
126:23 131:18	332:23 343:5	255:14	173:15 175:17	255:18 286:18
139:17,19	358:13 382:6	specialties 194:9	175:25 177:14	395:19 436:13
171:19 172:14	383:23 392:17	specialty 260:24	183:23	452:17
177:3 188:10	405:3,20 425:2	specific 68:25	spent 23:5 37:10	statement 8:4
210:20 227:14	425:5 437:5	118:3 123:20	408:2	36:10 37:21
237:11 243:17	452:11,13	131:22 207:1	spill 171:3	38:11 46:5,18
258:8,24 260:5	454:21 456:7	207:11 223:3	split 171:5	46:24 77:7
269:3,21	458:14 461:22	252:1 276:7,12	spoke 168:4	172:25 217:2,4
279:11,12	462:4,13 468:1	276:17 277:9	468:12	217:9,14 220:6
283:22 316:4	468:24 469:10	361:11 381:17	spontaneously 126:1	221:22,24
324:7 327:3	sorted 242:13	specifically 67:7	spur 206:2	222:7,16
330:3,14	sorts 104:14	67:13 83:11	Square 5:5	224:17 226:1,6
345:10 348:17	143:15 181:16	122:22 123:9	stab 103:20	226:15 235:3
348:22,22	223:9	146:2 182:9	stack 30:9	235:22 236:5
351:19 364:7	sounded 116:16	236:7 324:3	staff 171:17,20	236:24 238:6
365:23 366:8	199:7	331:13 417:12	171:21,23,24	246:5 273:8
368:8 370:2	sounds 55:19	specificity 270:24	172:10,21	277:9,11
373:4 379:15	88:11 118:14	specified 362:9	173:1,1 208:18	278:22 282:20
379:25 386:21	120:13 152:4	362:12	stage 39:17	291:11 292:25
391:20 394:10	164:14 235:12	specimens 422:2	40:14 46:23	293:17 295:19
397:10,11	258:8 295:11	spectrum 451:4	115:8 454:20	302:17 303:20
414:4 419:25	301:21 313:17	speculate 444:9	stakes 93:2	304:2 305:3
424:5 425:9	344:13 390:15	speculation 60:18 75:11	stand 337:4	306:21 420:9
431:19 433:3	445:8 447:1	110:16 157:10	standards 120:11	425:7 432:18
441:12 446:6,6	source 126:19	158:15 178:13	standing 352:14	432:21 433:16
446:17 450:13	127:5 225:7	178:25 186:11	standpoint 263:6	436:22 445:2
469:20	369:25 376:1	188:6,12	start 28:10 66:3	447:23 452:23
sort 24:3 49:12	sources 370:4	191:21 194:11	240:4,11	452:25
64:18 70:7	404:24	195:14 196:2	241:11 243:21	statements 234:5 293:3
	South 3:15	229:23 230:20	355:1	304:18
	space 472:4			states 1:1 13:14
	spaced 407:16			36:22 97:14

100:17 103:2	stay 299:18	287:18 293:17	286:20 288:11	461:6,18,23
236:12 282:11	355:14	314:23 361:21	293:15 305:24	462:4,5,17,21
303:24 305:18	stenographic	362:22 363:7,7	319:2 321:7,17	462:24 463:23
308:15 309:2	13:19	421:11 452:22	321:18 322:5,6	464:2
367:14 400:25	stenographica...	strongest 392:3	323:9,13,18,25	study 11:11
434:12 439:2	471:9	392:4	324:3 325:6,6	21:23 22:9
444:17	Stewart 350:17	strongly 394:25	325:10,12,13	42:17,17 123:2
statistical 9:4,13	351:4	struck 256:12	325:25 326:13	142:9 144:14
286:19 295:7	stick 421:25	257:11	327:11 332:22	144:19 146:7
295:17,18	sticker 29:20	structure	333:10 334:16	148:10,13,16
298:13,14,17	30:1 86:8	190:14	335:25 336:17	182:2,4,16
303:6 304:1,22	stickies 30:15,16	stuck 275:8	338:24 339:3	183:11 184:8
306:25 309:13	stood 280:19	316:16	339:14 341:7,9	214:25 215:3
309:24,25	stop 133:4	studied 77:14	341:18,19,21	222:4,12,14
310:17 311:16	156:12 305:19	150:6,12	342:1 343:6	223:16 232:25
312:8 314:17	337:11 456:15	370:24 449:1	344:7 345:21	233:11,13,14
315:25 318:10	stops 48:25	453:17 467:9	345:23,25	233:16 245:11
323:5 357:18	store 50:10 53:5	studies 9:17,17	349:8,9,19	247:3,23 248:6
statistically	story 254:11	10:7 11:4	351:24 352:1	248:12 249:15
233:21 234:13	410:13,17	64:22,23 77:2	353:9 354:2	249:22 250:16
236:15 237:16	straight 24:1,15	77:11,18	355:22 356:8	253:16 256:12
237:21 269:13	178:6	121:20 126:9	356:14,21,23	257:18 267:15
271:19 278:3	Straighten	126:13 141:12	357:8,19,20,23	273:5 282:11
286:21 287:4,4	155:4	141:15,23	358:20,20	283:8 284:4
287:19 291:7	straightforward	142:1,6,11,15	359:12,15	287:3,13
292:15 302:13	63:13	142:19 144:16	360:5,6,7,8,21	296:23 318:16
303:15 305:25	strain 438:15	182:6 212:18	363:5,20,21	321:25 322:18
309:5 318:10	strategies 370:8	215:5 222:5,17	367:20 368:21	322:19 323:15
321:9,19,19	Street 3:7,15	223:18 226:19	368:25 371:10	327:13,13
322:7,19	4:11,20 5:18	233:8 236:13	374:22 376:9	328:8 329:1
323:19 356:22	strength 269:8,8	237:14 238:4	387:4 388:2	332:16 334:1,2
356:23 357:4	269:17 318:9	238:13,24	390:10 391:8	334:3 341:14
357:10 360:8	362:7	239:1,14	392:6,12,14,18	342:14 343:3
456:13	stress 102:19	241:12 244:9	395:1,6 397:16	346:7 349:14
statistician 9:9	444:19	244:19,20	398:20 402:15	356:7 359:12
293:20,21	strike 42:3	245:4,6,18,24	403:15,18,20	359:17 364:9
295:5 296:24	46:17 47:8	246:2,6,15,16	403:20,25	366:2,2 369:3
301:2 307:8,14	63:21 64:22	246:25 247:5	404:8 405:15	370:12,14
308:17,20	72:15 89:15,19	247:16 249:9	407:2 412:2	374:14 381:18
309:4	219:21 275:22	250:19 251:4	415:20 416:5	388:3,22
statisticians	310:6,8,9	252:1,6,6,15	422:21 425:6	389:12,21
301:4,10	stringing 273:7	252:23 253:1,3	428:7 448:14	390:13,23
306:23 307:16	strong 214:25	253:7,9,16	448:22,24	397:22,23
307:17,18	216:22,25	254:5 267:24	452:6 455:14	398:6,6,18,24
statistics 307:10	217:5,11	267:25 268:7,8	456:12 459:23	399:3 402:24
stats 35:13	221:22 222:2	269:11 270:9	459:25 460:3	404:11 405:1
status 309:5	269:10 273:15	285:8 286:4,19	460:10 461:4,5	405:23 406:13

406:17 408:1	468:5,7,9	summary	sure 16:2 20:14	382:22 390:3
409:12 412:22	470:6	167:23 172:9	21:7,24 24:13	400:2,15
413:3,5,8,16	substitute	211:7,13	26:8,10,15	407:15 414:2
413:22 415:17	426:25	272:20 359:14	30:24 32:15	426:11 445:11
416:9,11 417:8	subtlety 136:18	361:4 373:11	39:24 41:19,22	445:11 450:15
423:23 425:12	subtypes 417:14	376:4	44:6,10 46:4	459:8 469:22
428:14,23	success 316:18	summed 286:24	47:17,24 48:2	Surgeon 10:21
429:1 435:22	succinct 70:12	summer 224:11	49:1 53:8,23	364:3 378:4,7
436:2 437:8	such-and-such	super 303:19	63:3 64:21	379:7,24
447:3 448:6	276:25	372:15	65:21 68:20	380:18 393:4
461:20 462:10	suddenly 462:6	superiors	71:14 76:7	surgery 63:6
462:22 463:15	sued 109:8	208:19	79:5 81:10	412:6
studying 102:18	suffered 250:5	supervision	86:19 88:21	surprise 147:7,9
383:5	sufficient 26:24	471:24	91:1 92:3 93:1	198:19
stuff 30:13	59:17 80:4	supplement	93:2 103:20,22	surprised 15:13
70:13 108:12	90:7 125:23	393:4	103:23 108:12	15:17
108:19 181:1	126:6 212:19	supplemental	111:12,14	surveying 407:5
183:18 198:1	379:9 386:9,11	6:21 19:5 20:4	113:18 116:3	407:20
200:15 277:5,6	387:11 396:4	20:6 21:15	117:2 118:5	Susan 7:6 81:9
311:13 319:25	403:25 404:1,2	34:5	122:1 135:7	susceptibility
373:24	404:2,7 457:6	Supplementary	141:8,19	102:22 108:5
sturdy 462:6	457:22	9:12	151:11 155:21	susceptible 47:5
style 102:21	suggest 182:1	supply 110:7	164:16 166:23	suspected
subcommittee	188:14 356:13	support 87:23	167:15 170:5	123:18 125:25
8:6 234:9	469:17,22	89:18,23	170:16 173:3	swamp 93:11
235:23	470:5	194:24 211:16	173:23 175:4	swell 320:8,25
subject 124:17	suggested	234:5 273:6,8	175:10 177:4	sworn 13:23
126:19 127:5	285:11 320:13	312:7 320:8	182:6,17 199:9	471:6 474:14
128:14,17	suggesting	321:1 364:22	201:2 211:14	symptom
472:8	160:25 320:11	415:22 416:5	213:16 226:22	104:21
subjects 282:13	suggestions	421:12 422:22	227:15 230:25	symptoms 7:24
284:3	176:13 177:7	439:7 441:16	243:15 245:19	214:7 371:6
submitted 21:12	suggests 236:18	441:24,25	281:5,10	system 36:8,15
21:21 236:6	271:18 278:2	468:13,17,18	284:24 285:10	104:9,13,14
262:12,15	293:11 444:23	469:5,14	291:23 293:8	250:18
submitting 23:5	Suite 3:8 4:12	supported	295:1,2 296:13	systematic
subscribed	4:20 5:5	418:15	299:8 300:11	10:12 11:13
471:14 474:14	sum 388:9	supportive	301:23 303:8	242:24
subset 286:20	summaries	246:19 418:22	315:18 326:10	
substance	165:9,20,23	436:21,21	331:8 333:6	T
173:20 174:4	167:1 168:2,9	445:21 463:4	347:24 349:1	T 5:16 6:1,1,8
174:15 176:18	168:16 170:6	supports 37:3	350:8,17	7:1 8:1 9:1
184:2 474:7	summarize	273:3 384:6	351:21 355:2,8	10:1 11:1 12:1
substances	165:6 309:9	419:25 420:22	355:18 358:10	473:2
448:21	343:12 356:11	423:8	361:5 364:24	T-A-H-E-R
substantive	Summarizing	supposed 385:3	373:12 375:9	424:2
183:13 184:10	236:10,12	454:15	375:11 377:4	table 11:4 171:5

171:5 250:8,10	talc 8:11 9:21	63:23 64:5,24	278:22 279:1	58:1,11,22
328:9,25	11:12,18 55:3	69:11 72:6,18	280:23 329:6	69:25 72:21
330:10 334:21	75:25 76:13,16	74:23 75:4	368:17 382:12	73:25 74:1,4
336:8,9 340:24	76:21,25 78:21	76:2 77:12,14	384:5,7,18	79:25 80:6
350:23,25	126:19 127:5	77:14 78:3,10	385:21,23	81:3 90:4,9
351:2 394:5	134:10 211:19	78:17 79:17	406:14 407:7	99:21 111:1
396:20,21	215:4,6 222:5	80:9,13 84:11	410:22 411:5	117:15,17
397:14 399:14	223:17 225:22	84:16,21 89:15	411:10,22	118:7,19 135:9
tables 257:14	240:16 259:10	89:17,19,21,23	415:8,15,21,23	136:24 163:9
Taher 266:25	259:11,15,16	109:21 111:2,7	435:17 436:13	167:7,9,10,15
271:17 278:1	259:17,18,23	111:9 120:20	451:24 453:5	167:16 170:7
359:12,17	259:25 261:14	126:9,14,19	460:10,11,25	170:19 174:16
423:22,23	270:10 271:21	127:11 128:17	462:19 464:3	192:13 195:8
424:5,12	273:1 278:5	129:3,13,25	talk 24:24 31:5	197:19 199:25
take 23:9 41:13	280:25 281:3	130:25 131:15	31:6 34:1	201:3 223:2,11
42:20 44:11	285:13,15,19	132:7 134:15	40:10 44:2	241:6 244:17
56:15 82:17	286:2 329:1	134:19 135:5	46:8,9 59:15	245:3 246:14
92:20 99:11	331:2 339:22	135:14 136:7	59:20 71:12	247:4 262:20
103:19 136:5	345:1 359:3	136:20 137:2	80:19 86:20	263:10 276:23
139:8 153:3	384:20 399:22	137:20 138:8	99:9 121:1	280:20 299:8
154:12 183:25	400:13,16	140:22 142:12	125:6,12	303:7,11 315:1
190:4 203:22	401:4,8,20,21	142:16 148:16	151:22 156:22	317:22 321:3
204:2,12,15	401:23 412:8	149:21 150:20	163:6 177:21	323:4 337:14
209:25 213:13	412:11,16,23	151:4 163:3,7	184:14,16,24	375:23 384:23
216:18 255:8	416:6 417:11	163:13,18	184:25 211:22	386:10 387:5
257:18 263:8	417:14,17	164:12 165:24	216:2 219:16	387:23 390:7
263:15 268:18	418:16,17	167:2,12 187:6	238:7 239:21	393:7 402:5
282:24 298:9	422:12 423:19	199:1,12,25	243:3,5 250:25	403:21 406:8
299:25 300:6	424:14 427:12	200:3,10,22	297:13 314:19	408:10 409:23
300:16 308:11	428:6,8,20	201:3,9,23	315:18 319:15	412:4 419:7
320:15,17	429:6,19 432:3	202:21 203:1	337:13 360:19	421:25 447:24
329:13 340:5	432:10 433:6	209:18 210:23	361:8 374:20	449:12 452:5
340:17 343:15	434:1 435:23	211:17 212:21	376:21 399:20	454:5,7,8,9
353:21 365:7	436:25 437:9	214:19,23	444:11 447:2	455:24 456:2
369:15 377:8	439:9,12 448:8	216:20 217:9	454:25 459:14	459:10,13
386:18 387:15	448:16,16,19	218:2 219:7	461:22 463:7	461:13 465:14
388:2,3 416:16	449:2 452:15	220:11 221:5	talk- 28:17	466:7,10,14,18
426:9 430:22	452:18 453:19	231:16 233:23	talked 141:9	talks 92:2
431:22 434:20	talc's 422:10	234:10,12,21	153:5 162:16	214:13 278:14
439:17 440:1,1	Talc/Ovarian	236:14 237:15	203:15 335:23	418:10
440:3 446:17	9:16	240:17 241:7	355:21,25	task 190:4 462:8
454:21	talcs 285:24	241:10 261:14	428:15 435:15	tasks 178:18
taken 14:13	286:9	262:7 263:15	435:16,23	Taylor 8:22
15:11 19:17	talcum 1:5	263:16 264:1,2	436:4,4 452:4	team 175:18,25
81:21,22	13:11 28:14,19	266:17 272:15	457:18	teaming 132:24
197:23 471:4	49:3 50:7,13	273:22 274:14	talking 28:12	tear 29:22 343:5
takes 383:20	59:3,11 60:2	275:1 276:1	40:24 47:25	technical 196:20

269:6	90:9 144:8	355:23 356:11	thereof 304:1,23	463:12 468:24
Tecum 6:13,18	224:22 225:9	356:12 407:21	471:11,14	think 14:16 17:9
tell 26:21 50:17	240:1,8,20	412:15 415:9	thing 32:9 85:11	18:8 20:24
51:24 69:9	245:6 260:13	429:15 432:6	86:16 111:24	24:18 25:20
73:11 79:9	335:1 337:7	436:18 449:7	118:7 164:15	28:21 29:15
122:12 141:8	347:25 363:11	453:8 471:7	205:24 212:12	30:16,20 40:3
143:9 157:11	452:5 456:24	testing 64:4,19	215:1,2 248:14	41:19 42:25
157:15 162:4	terrible 461:25	69:10 70:8	277:3 287:18	43:21 46:3
179:1 183:16	462:1	74:12,22	299:7 309:6	48:8 49:13
186:2 192:24	Terry 238:1	120:10,14,16	313:20 324:8	53:16 56:9
218:17 219:9	463:18,18	120:20 291:10	408:11 425:3	57:25 65:2
245:23 248:5	test 37:9 70:18	292:21 302:5	445:8 447:4	67:4,6,8,18
248:11 249:8	71:18 207:22	315:11 316:11	456:1 469:10	68:12,13 70:15
249:14,21	424:21	tests 64:17 72:17	things 20:16	71:20 73:11,24
250:4,17	tested 63:23	text 265:11	21:3,19 52:17	74:4,18 75:21
273:14 277:11	64:24 72:7	331:10	59:15 61:11	77:9 79:5,7,23
283:15 320:15	testified 13:24	thank 19:19,20	64:18 69:1	85:18 88:12
334:4 341:24	159:16,17	19:25 35:18	73:2 92:3 97:7	90:10,17,20,21
342:3 344:18	177:16 206:24	39:2 44:24	104:19 116:8	90:22,24 93:22
387:23 389:10	207:9 233:19	45:5 54:8 58:6	117:3 125:22	97:6 106:9,12
390:2 391:7	234:8,11	63:2 74:10	130:19 142:2,3	106:23 107:25
405:17 468:16	384:14 428:16	76:23 80:23	143:11,16	109:19 112:20
469:6	431:21 432:1	87:8,22 88:25	144:16 146:18	113:5 116:9,20
telling 160:13	testify 137:1	89:13 100:5,11	158:3,6 162:11	117:2 118:2,16
460:15,18	138:3 160:11	101:18 119:5	162:12 168:22	120:13 121:17
tells 434:8	466:18	127:1 139:5,9	168:25 169:3	124:25,25
temporality	testifying	147:1,2 188:12	170:6 171:3	126:21 130:7,8
269:19 270:19	160:24 206:3	210:2 215:11	175:15 176:10	131:16,21
270:19	testimony 7:20	227:4,9 252:4	178:16 183:24	133:13 135:12
ten 33:5 130:5	20:23 32:2	272:4 282:7	202:11 203:19	136:20 137:23
137:13 152:14	43:19,22 67:12	283:23 287:10	215:19 223:9	138:10 139:6
152:19,20	67:16 88:7	325:2,21 327:7	224:15 239:3	139:19 140:8
155:14,20,24	109:17 129:19	327:7 330:17	239:12 253:24	142:7,9 143:11
185:15 189:18	132:13 137:25	338:18 349:6	256:21 257:10	143:21 150:23
331:10 333:5	138:12 139:18	364:18 377:20	263:1 266:9,20	152:7 153:2,9
340:18 341:2	139:24,25	381:13 397:8	269:12 273:7	154:18 161:3,9
343:23 344:14	150:22 151:7	400:10,10,11	291:16 308:13	162:7,8,10,17
tend 70:7	153:18 163:2	419:17 431:3	308:14 310:22	162:18,23
tens 155:24	163:15 171:12	431:20 437:13	311:3 332:6	163:1,8 164:14
408:1	172:12 176:3	443:7 470:12	334:24 340:24	165:8 166:21
term 196:20	191:15 205:25	470:13,14	357:23 375:2	167:22 170:17
269:6 447:1,6	206:8 232:1	thanks 14:3	385:2 386:5	182:23 184:12
450:25 459:7	233:20 237:3	82:15 166:11	404:3 412:7,9	185:21 189:22
terminology	259:4 264:5	301:9 470:10	412:10 415:2	191:23 195:8
73:10 130:6	279:9,14 315:6	theory 76:14	426:15 442:4	197:8,25
terms 20:24	323:22 336:22	201:13,17	452:4,13	198:11 199:23
70:12 73:21	345:4,15	420:23 439:8	459:15 462:12	201:21 202:11

205:24 206:21	358:8,11,18,22	116:12,16	151:16,19	title 297:5
210:13 211:23	358:23,23	190:10 206:2	152:2 153:2	389:17,18
217:1,3,16	361:9,12,19	227:9,11,16	163:17 173:15	Tobacco 10:20
218:18,25	362:1,11,12	238:24 241:6	175:17,25	378:7
219:18 220:7,8	364:3 371:9	251:22 254:6	176:5 177:13	today 13:16,20
221:12 223:8	372:17 374:1	257:18 291:16	177:13 178:1,7	15:2,13 19:22
223:10 224:5	374:13 375:23	294:22 307:15	183:23,24	19:24 22:22
226:6,8 229:18	380:13 386:24	307:17 316:22	185:6,12	27:9 34:6,7
229:25 230:16	387:1 388:1,8	366:8,10	187:17 189:25	43:19 53:7
230:17,18	388:16 389:21	461:21	197:24 202:19	68:5 69:9
237:1,3,23	389:22 390:6	thought-prov...	204:5,19,22	71:16 75:5
238:4 240:18	390:22 392:2	301:9	218:22 227:22	111:17 121:14
243:2 244:12	392:10,11,13	thoughts 126:2	229:25 241:15	130:22 145:3
245:22 246:14	392:18 394:11	233:10	257:24 258:9	157:25 160:11
252:17 253:13	401:19,23,24	thousands 408:1	258:21 265:13	161:4 205:14
253:18 254:20	410:10 412:3	three 22:18 23:7	270:20,21	205:23 257:21
255:3,5 257:25	418:14 421:11	43:14 57:14	280:6,10,13	298:7 300:21
258:8 260:1	425:11 430:15	183:12 245:7,8	282:24 299:14	318:9 329:24
264:15,17	432:6 435:9	245:8,9 267:15	301:17 314:16	338:23 340:5
270:24 272:18	436:1,19	290:6 297:13	315:19 320:18	363:10 367:25
273:8 276:22	447:21 451:7	318:3 331:11	320:21 338:13	412:14 427:2
276:23 278:18	451:11,12,13	349:20 350:6,7	338:16 349:4	433:19 435:15
278:21 279:11	452:10 456:2,9	390:11 430:16	349:22 374:5	462:16 467:25
279:15,18,19	456:10 458:15	432:22 459:25	376:22 377:9	468:12 469:4
280:20,22	460:24 463:14	459:25	377:12 381:10	Today's 13:6
281:9 283:7,15	464:10 466:7	threshold	387:9 426:14	Todd 1:25 2:16
287:12,15,17	469:1,3	302:14 305:21	426:16,19	13:20 471:18
293:4,14,17,17	thinking 40:1	318:19 319:9	447:10,13	toe 107:11
294:16 296:9	48:16 49:10	319:13 362:9	464:12,15,19	told 15:14 115:6
297:11 301:20	70:1 144:7	362:12	464:22 470:11	162:11 221:1
301:21 303:10	392:21	threw 440:14	470:16 471:5,6	244:16 430:9
303:12 305:1,2	thinks 361:20	throw 29:23	471:8	454:18
306:9,9,13,15	434:9	Tiernan 8:5	timeline 29:9	tolerance 84:10
306:19 311:11	third 8:20 48:3	tight 44:3	times 14:13 28:8	Tom 325:19
311:12 315:20	64:10 101:7	Tim 289:12	57:15,24	348:23 430:13
319:16 321:24	236:8 290:2,14	290:14	117:21 155:17	430:18,18,18
321:25 322:10	290:18 369:22	time 13:6 19:10	189:6 259:3	430:18 431:9
322:13 323:3	389:21 432:22	19:13 21:1	389:6 453:23	ton 373:23
323:14 325:19	third-party	23:1 27:13,15	Timothy 289:6	tone 106:7,9
330:7 331:6	176:20	27:19 42:20	289:12	113:14,19
332:17 334:8	thirty 472:12	44:15,18 46:13	tiny 361:16	115:2
337:1,7 340:12	THOMAS 3:13	49:12 55:24	371:14	tools 238:23
340:17 342:20	5:16	57:11 71:12	TISI 3:12 100:9	top 66:7 84:1
343:8,19,20,22	thoroughly	83:3 88:20,22	132:21,24	93:9 95:23
345:12 352:12	322:1	89:3,6 91:2,13	289:21 431:8	161:15 197:10
353:16,20	thought 66:19	114:8 117:16	tissue 282:14	243:8 284:16
355:24 356:9	69:25 72:22	128:8 151:10	284:10	284:18 328:8

396:21 414:20 topic 48:15 77:10 123:22 124:13 128:25 129:3,12 131:12,24 134:15 140:21 144:13 150:3 151:4 156:3 163:23 164:11 189:9 199:14 200:3 203:1 223:3,11 232:6 240:7 245:10 303:12 313:18 315:18 408:25 448:15 453:17 topics 141:25 143:13,14,15 162:25 254:15 260:2 tore 30:3 total 179:23 388:9 420:25 462:20 463:3 totality 383:21 384:3 totally 204:18 touched 69:5 touching 332:5 tough 332:17 Towson 1:16 2:7 13:10 15:2 Toxicological 262:3,5 toxicologist 119:17 Toxicology 262:9 toxin 450:21 toxins 120:11 Trabert 22:9 track 327:10 traction 315:15 traffic-related 376:2 trailed 348:25	trained 52:15 training 117:5,6 230:1 transcribed 471:10 transcript 6:9 7:2 8:2 9:2 10:2 11:2 12:2 22:13 86:3 471:10,12,21 472:13,14 transcription 474:4 transcripts 60:8 167:24 231:21 Translational 9:8 294:14 308:16 309:21 310:12 transport 273:3 284:19 285:6 transvaginal 284:21 285:7 413:11 traveled 230:12 treat 60:14 62:1 62:1 treatment 61:6 63:12 115:23 116:6,25 118:9 treats 61:1 trending 352:8 trial 128:10 138:3 188:14 trials 128:4,6,12 128:16 246:21 trick 133:7 tricky 41:18 tried 238:12,18 238:24 239:2 240:13 245:17 245:19 246:1 246:16 247:8 251:7 333:14 338:25 358:22 359:1 447:22 461:19	tripping 184:24 trouble 87:5 true 41:24 90:22 90:24 103:15 108:7 121:13 218:4,25 226:6 226:6 257:24 294:25 303:3,9 314:7 381:10 383:24 384:4 388:11 418:21 418:23 436:2 437:7 455:11 458:19 465:25 466:21 471:10 Trust 219:17 truth 37:2 331:22,25 463:5 469:19 469:24 470:7 truthful 14:23 434:19 truthfully 73:19 160:11 274:18 try 32:19 38:5 48:3 55:20 111:25 115:10 133:6 149:11 179:21 183:24 198:12,14 216:15 266:16 310:22 352:23 408:10 463:7 trying 48:8 53:6 73:3 106:10,12 118:13 122:3 130:14 131:21 133:7 135:6 156:16 167:15 168:6,12 170:24 172:18 177:19,19 179:20 184:6 184:24 189:19 190:3 191:13 194:13 198:12 200:24 202:19	246:2 251:14 257:11 266:15 266:20 278:18 284:25 288:16 294:16 296:8 311:21 331:6 337:1 338:20 340:14 342:11 343:7,9,11 352:12,13 360:2 361:10 376:23 385:2 386:22 453:12 453:14 462:9 469:1 tubal 285:16 tubes 417:18 TUESDAY 1:17 turn 52:21 193:24 210:24 212:1,2 214:16 244:14 256:5 305:5 324:2 394:6 423:20 turned 227:2 turns 104:21 twice 245:15 345:13,18 two 22:18 43:15 73:2 92:25 101:3 112:21 121:24 131:4 139:7 183:11 196:25 217:17 218:25 243:7,8 256:11 258:9 285:24 305:24 306:10 308:14 312:3 313:10 314:3 321:12 323:9,18 346:11,13 349:14,20 350:6,7 351:12 351:14 354:24 354:25 360:15 388:16,17	389:22,23 432:22 441:20 two-minute 176:6 two-sided 140:8 type 56:7 64:8 102:1 134:25 158:6 165:24 167:1 180:18 188:2 250:4 269:16 358:4 360:24 368:3 392:18 458:5,6 458:8 469:14 typed 20:20 types 103:17 180:11 267:15 359:11 368:1 401:3 404:18 typical 387:7 465:16 typically 266:6 typing 20:9 91:15 typo 94:8 typos 168:24 176:9 181:17 469:7 Tzonou 351:23 352:15 <hr/> U <hr/> Uh 328:21 ultimately 239:8 Ultrastructural 11:15 427:9 Um 344:24 379:25 uncertain 417:16 418:3 uncertainty 301:8 455:1,4 455:5 unclear 28:22 62:14,16 283:18 284:6 286:4
---	--	--	---	--

uncontroverted 233:20	422:15 428:22 428:25 440:16	university 15:6 93:19 100:19	309:5,12,24,25 311:1 316:16	342:5 461:14
underbelly 360:3	448:12 450:12 453:14 460:20	153:12 208:10 223:14 224:17	316:19 317:9 317:10 329:1,5	validated 460:25
undergraduate 94:23	understanding 17:24 39:15	314:9 320:3	330:11 331:2 331:13 332:24	validity 239:22
underlying 326:13 392:13	40:13,18 51:14 52:14 59:22	unprecedented 462:2	334:18 339:22 340:8 343:25	Valley 2:6 13:10
443:11	64:3 72:4,10 109:2,14,24	unpublished 359:22	344:14,25 345:1 346:21	value 341:1
Underneath 350:19	110:3,10 130:24 158:9	unravel 245:16	361:2,18 362:13 368:12	variables 249:22
underpinning 72:2	166:19 170:25 176:21 178:9	unreliable 331:17 340:19	392:2 404:9,18 413:9 414:17	variety 203:18
underpinnings 205:20 254:2	180:11 363:23 405:5	update 242:6	417:11,15 421:17 428:6	359:4 363:4
underpowered 342:17	understandings 33:3	updated 213:18	446:25	404:9,24
undersigned 471:2	understands 80:21 330:7	updating 92:4 92:23	useful 29:23 239:9	various 165:15
understand 14:6 14:12,17,20,22	understood 61:12 70:15	upper 285:1	users 280:23 281:1 331:10	171:12 242:25
24:5 29:13	80:22 144:5 156:22 203:6	upside 449:14 463:1,17	365:5,17 428:20	341:17 455:14
32:10,13 37:9	381:10	urgency 315:8 315:22	USGS 400:25	vast 245:19
41:17 60:12,15	undertaken 394:2	urgent 93:8	usual 14:4,11 449:14	Venter 285:9
64:12 67:11,23	underway 286:5	urging 295:20 309:23	uterine 417:18	verbally 244:16
73:9,25 81:25	underwear 331:14	urine 404:25 405:25	uterus 254:9 412:7	verify 20:16
82:3,4 103:21	unexposed 366:21 428:16	usage 50:20	utilize 186:23	version 213:17
109:20 121:8	428:16	use 9:21 11:9,12 46:12 51:17		versus 318:10
124:24 133:9	unfortunately 237:4	54:21 59:10 71:9 75:6	V	348:8 356:8
135:7 144:4	uniformly 461:4	76:16,21,25 78:18 80:14	V 3:12	357:19 366:20
154:11 162:2	uninformative 343:24	84:23 93:4 119:23 149:4	vagina 411:11 411:23 412:7	vertical 353:18
167:14 177:20	unique 247:14	154:19 168:1 195:23 198:15	416:7 417:17 418:6 433:8	vice 294:6
179:21 180:8	unit 104:10	211:17 214:23 216:20 217:9	435:2 449:16	video 13:7,8
180:10 191:14	105:13,23,24 105:25 106:1	218:2 219:7,22 220:11 221:5	vaginal 285:11 430:3	videographer 5:23 13:3,5
207:6,17	United 1:1 13:14	233:23 240:13 242:18 263:12	vaginas 254:9 254:12	14:7 19:10,13
232:24 233:5	36:22 367:14 434:12	264:2 272:15 273:21 274:14	vague 111:23 149:24 220:5	19:23 44:15,18
251:14 253:21	universe 251:14 293:12	290:24 291:9 292:20 307:10	230:11 231:4	44:23 89:3,6
253:24 254:1			Valentin 9:13	89:10 151:16
254:10 255:9			valid 239:15	151:19 204:19
256:22 257:17				204:22 280:10
266:8 318:8				280:13 320:18
326:21 352:12				320:21 338:13
354:20 375:5				338:16 376:25
382:17,20,21				377:9,12,22
385:20 389:16				426:16,19
400:15 408:8				447:10,13
410:24 411:3				464:12,15,19
				464:22 467:13
				470:16
				videotaped 1:14
				6:11,16 17:16
				470:18
				view 171:8
				225:10 246:19
				306:19,20

violates 160:19	65:20 73:14	346:21	146:18 165:4	347:14 351:19
violating 337:24	86:22 93:2,11	wanting 172:24	172:17 183:22	365:9 393:4
violative 160:21	93:16 96:15	wants 223:15	190:5 196:21	396:24 400:19
virtually 198:19	99:5,6 103:19	439:16,24	198:14 201:8	404:9 406:10
virtue 395:21	114:25 122:14	444:10	207:19 211:23	416:17 437:12
vitae 7:9 91:3,11	140:11 151:22	War 226:19	215:4 217:16	444:13
91:24 92:10	152:16 159:4	392:22	219:1 222:5	we're 14:9 19:11
127:10,19	160:5 161:15	warmer 44:8	223:18 229:15	19:14,16 27:8
146:10 364:21	162:2,4 168:8	warning 51:16	230:11 238:19	28:12 32:18
390:10	175:24 176:7	51:24 54:18	244:11 258:8	33:15 34:1
vitro 252:1,6,14	180:8,10	57:2,22 58:1	263:12 275:8	37:23 44:1,16
252:15,23	183:17,19,20	58:12 75:6	283:13 301:11	44:23 47:24
253:15	183:21,22	295:19	342:25 371:2	58:1,5,22
vivo 252:14	189:8 203:20	warnings 51:22	375:24 377:14	72:21 73:25
253:1,15	203:21,22,25	56:22	382:5 401:17	74:1 77:24
vocabulary	204:2,10,11,12	Washington 3:9	404:22 405:21	81:3,18 82:8
447:2	204:15 217:19	4:13 5:12,19	415:4,16	85:5 86:20
voice 81:24	241:23 251:18	wasn't 29:23	429:13 447:1	89:4,7 105:18
115:7,8	252:12 254:1	47:15 50:15	454:14 456:9	113:5,21 114:2
void 471:13	276:18 279:13	61:14 139:19	456:10 465:19	118:7 130:21
volume 10:24	293:3 316:7,18	156:25 179:23	467:24	136:24 151:17
195:21 296:24	317:3,7 319:2	188:15 216:12	ways 46:11	156:16 163:9
405:20	319:7,8,14	231:6,6 246:2	115:11 219:19	167:7,9,9,15
vote 455:15,25	320:16 326:7	246:19 250:20	223:23 224:5	167:16 170:7,9
vulnerable	326:17 331:22	250:23 252:21	285:23 314:13	172:14 183:18
370:7	331:23,24	253:23 283:11	317:1 403:19	197:19 199:23
	332:2 337:6	320:1 323:10	445:21	201:14 204:23
W	338:6 341:11	342:10,10	we'll 14:10 19:2	209:10 213:23
wait 61:18 62:21	341:12 343:24	343:4,5,9	19:18 25:23	216:3 223:11
68:23,23,23	344:11 351:6	345:10 389:25	29:9 40:10	229:4 245:3
144:1 200:13	353:4,20	391:10 425:1	52:9 59:20	246:14 247:4
210:17 234:17	358:12,25	462:8,9	83:12 91:3	263:10 280:14
234:17 247:7	363:17 372:15	Wasserstein	95:8 98:22	280:20 289:21
258:14 270:2	374:4 377:3	298:6 309:7,22	132:17 138:14	294:11 299:7
274:22 275:13	379:6 384:12	310:15 320:12	138:17,21	304:13 311:14
276:13,13	394:6 399:24	Wassertine	139:8 151:15	311:15 317:22
293:2 303:1,1	413:25 424:16	310:15	152:2,12 211:1	320:19,22
318:2 335:5	425:9 430:21	waste 27:13,15	212:8 213:3,7	323:3 338:5,14
346:4 358:8	432:15 438:15	218:21 306:1	235:16 238:7	338:17 342:20
361:25 377:6	438:18 440:19	watered 221:12	250:25 267:7	350:2 359:11
444:12 466:11	449:21 465:13	way 17:9 39:9	271:11 275:11	365:10 372:16
467:14	wanted 29:21	40:5 41:19	291:19 297:13	376:22 377:10
walk 218:20	30:2 32:25	46:4 59:15,16	299:19 311:23	377:13,14
want 18:17	40:1 99:16,25	69:7 71:20	312:4 315:15	387:21,23
20:14 24:6,24	190:2 194:23	73:3 74:6	320:17 326:14	408:10 412:4
27:14 32:15,22	251:20 253:20	75:12 105:18	328:14 337:16	419:7 426:17
42:9 62:9	275:19 313:21	107:24 108:19	338:6,11,11	426:20,24

447:11,14,24	well-respected	18:8 20:24	141:1,14,20	224:4 225:4
449:12 452:5	260:4	21:18 22:8	143:7,21 144:6	226:3 228:9,14
454:8,9 455:24	went 93:10	23:21,23 24:18	144:21 145:9	229:24 230:21
459:10 463:6	150:24 203:23	29:3 31:8	145:18 146:15	231:5,20 232:8
464:13,16,20	233:20 316:22	32:21 35:9	147:1,9,19,25	232:19 233:5
464:23 465:14	333:8 338:22	36:1,25 39:21	148:19 149:2	233:16 235:9
466:7	weren't 50:15	40:17 41:18	149:16,25	237:1 244:3
we've 57:23	230:9 241:15	42:22 43:5,21	150:23 151:8	246:1,11
58:11 85:4	246:22 293:16	47:11,14,24	151:12 152:12	247:25 248:8
157:17 226:4	307:5 379:5,5	48:13 49:7,23	153:19 155:2	248:18,25
316:19 317:10	425:3 456:13	51:1,10,20	156:13,23	249:12,18,25
317:10 329:24	Western 102:21	55:2,17,19	157:11 159:14	250:7,23 251:7
349:8 358:11	108:4	56:3,9,21	159:24 160:8	255:3,16
359:18,22	Western-style	57:16,25 58:15	167:7 168:21	256:19 258:24
368:16 402:5	102:22	59:6,13 60:5	169:14,21	259:12 260:11
404:19,22,24	whatsoever	60:19 61:5	170:16 171:17	261:3,18,25
427:1 433:18	383:19	62:5,15 63:25	172:14 173:23	262:20,25
435:23 436:17	wheelhouse	64:8 65:2,13	174:7,12 175:6	263:21 264:6
449:10 468:6	254:25	69:15,21 72:10	175:13 176:4	265:4,22 266:2
weak 269:10	WHI 232:25	72:20 73:9,17	178:14 179:1,9	267:20 268:3
360:21,22,25	233:14,16	73:20 74:18	180:7 181:1,10	268:13,20
361:5,22 362:3	whisper 226:25	75:1,9,12,18	182:19 183:2,8	272:18 274:3,5
362:22 363:11	Whitnum	79:1,4,23 82:3	184:20 187:14	274:20 275:7
weaknesses	388:21 391:8	85:7,10 86:15	187:22 188:7	275:16 276:17
460:10	457:12	86:20 87:3	188:10,13	278:13 279:10
web-based	Whittemore	88:8,19,23,25	189:3,23	279:15 281:9
238:23	285:11 351:15	90:3,16 96:19	190:23 191:22	281:16 282:22
website 7:12	whoa 99:10	97:23 98:9	192:6,11	282:25 286:11
95:9 96:3 98:5	160:9,9,9	99:1,12 103:19	193:21 194:2	287:11 288:2
100:8 101:20	440:23,23	104:3 105:11	194:12 195:7	288:10 289:3,9
101:25 188:2	widely 49:4,14	106:8,23 107:5	195:19 196:11	289:14 291:15
223:15 224:9	widespread	107:18 108:24	197:14,18	293:2 299:4,13
224:11 225:15	295:15	109:5,19 110:2	198:8,22 199:4	300:7,17
316:23	wielding 253:22	110:17 111:12	200:10 201:16	301:20 302:19
websites 213:20	wife 229:3,8	111:24 116:1	202:2,10 203:9	303:2 304:7
224:15	Wignall 398:5	116:16 117:12	204:7,13,17	305:1 306:8
wedded 323:5	wildly 161:1,5	118:2,13 119:1	205:11,18	307:3,8 310:21
week 17:6 93:14	William 66:10	120:18 124:1	206:11,20,25	314:11 315:7
133:1 313:12	66:16,24	124:25 125:9	207:1,19	318:14 321:12
weighing 321:17	wish 274:10	125:15 127:15	208:21 209:4	321:23 322:10
weight 321:8	299:13 319:4	127:23 128:22	209:11,21	322:22 323:23
WEIL 4:19	330:20 334:5	129:20 130:5	210:13 215:18	331:5,19
weird 394:12	340:5	130:18 131:6	216:11 218:9	333:20 334:11
Weiss 348:3,7	withdraw 61:20	131:12,18	218:11,24	334:21 336:4
welcome 89:2	62:19	134:22 135:25	219:12,18	336:24 339:5
343:25	witness 2:19	137:12,23	220:19 221:21	339:18 340:12
well- 260:8	15:19 16:7	139:7 140:8	222:10 223:2,8	342:19 343:19

345:23 347:15	443:23 444:8	69:7 71:9 97:9	191:3,3,7	296:25 308:18
348:7 349:13	445:5,19 446:6	123:12,23	192:1,2 193:11	309:3,22 315:9
350:24 351:6	446:24 447:20	124:10,12	194:23,25	315:10,24
352:4,11	448:13 449:9	125:2 147:4	195:21 198:13	316:2,3,4,5,6,7
354:17 356:5	450:11,24	168:22 169:17	199:6 200:5	317:7 318:19
357:1,14	451:11 452:3	169:18 170:13	225:6 230:6	392:21 456:1
358:11 360:14	452:21 453:9	170:14 187:22	231:7,9 256:25	world-renown...
361:25 362:11	455:8,17,24	240:24 241:1	339:5 367:7,10	260:23
363:1,14 364:3	456:19 457:2,9	241:17 268:24	378:11 407:5	worried 362:18
367:19 368:8	457:25 458:22	269:3,4,5	407:19 408:14	worries 177:4
368:20 371:20	460:20,23	270:15 272:3	408:22 409:4	291:23 366:9
372:6,15 373:4	461:11 463:21	273:16 293:10	450:25 452:13	worsening
373:18,23	464:10 466:5	303:13 313:6	467:3	372:19 376:12
375:9,11,15,22	466:13 467:1	333:21 361:2	work-product	worth 16:8
376:17,22	467:15 470:2,9	378:9 405:6	33:10 161:25	197:24 257:11
377:2,5 380:5	470:14 471:6,7	442:9 460:6	166:13 177:10	wouldn't 15:13
380:13 381:9	471:14 472:1	468:5	worked 23:16	21:18 36:17
381:21 382:4	Wolfson 71:5	worded 221:17	56:5 69:8	40:7 48:22
382:17 383:8	219:4 220:9,15	words 70:9	152:24 174:24	51:22,23 56:23
384:11 385:1,7	woman 63:17	91:15 119:23	182:5,5 185:18	56:23 57:6,7
385:10,17	115:23 116:6	147:7 149:4	186:3,9,15,22	63:4 71:9 72:1
386:1 389:10	116:25 117:19	167:14 169:23	190:5 192:6	106:14 116:23
390:4,22 391:6	118:9 119:7	170:4,17,20	195:20 229:13	147:9 149:16
391:20 392:1	152:24 175:9	194:14 240:13	230:10 388:4	149:17 197:23
393:6,11	woman's 412:17	240:18 270:23	402:14	197:23 207:21
394:13 396:9	women 34:25	320:14 360:24	worked-out	215:18 231:5
396:16 399:24	35:6 36:21	360:25 361:1	281:17	311:5 323:11
400:15 401:17	59:2 60:14	work 33:8,12,15	worker 392:17	323:11 340:24
402:12,19	61:1 62:1,3	37:25 38:12	working 176:23	342:3 368:11
405:13 408:24	215:9 226:13	48:17 56:1	183:18 185:1	382:4 383:18
409:15 410:7,9	234:12 236:14	63:6 92:20	185:14 187:5	409:23 410:14
411:3,15,19	236:18 237:15	104:10 128:20	202:21 261:10	449:17 452:19
412:2,22	250:5 280:22	128:25 129:2,6	261:13 387:9	452:21
413:16 415:1	282:15 283:18	129:6 130:20	394:9,20,22	Wow 446:6
416:14 418:1	284:6 285:15	135:8,17 136:6	395:10 396:1	write 145:19
418:21 419:7	286:3,3 331:16	152:14 154:20	398:20 402:5,6	149:5,9 154:23
420:20 421:7	340:18 387:8,8	156:24 157:9	works 81:25	168:18,21
421:15 422:17	388:3,22 391:8	158:13 159:20	105:19 129:6	206:16 219:20
423:12,25	395:1 410:18	160:2 163:18	153:13 313:8	240:3 243:2
426:11,14	412:5 428:17	163:22,24	319:18 320:3	311:2 316:7
428:19 429:3	428:19,24	173:19 175:2	world 8:23 9:10	409:9 437:7
429:16,22	449:13	176:16 178:23	57:17 80:1	468:4
430:10,16	wonderful 114:6	179:6,13 180:5	81:4 90:19	writers 436:25
432:17 433:14	wondering	181:5 185:22	98:6 135:6	writing 30:21
434:5,22 435:8	204:3,8 301:3	185:25 186:17	226:19 260:18	33:19 233:7
435:20 436:19	Wong 350:20,22	187:12 189:13	265:18 268:22	395:24 468:1
437:5,23 442:4	word 46:12 53:7	189:16 190:16	270:16,20	writings 33:2

170:3 356:13 written 130:20 130:25 134:25 145:9 309:7 322:11 409:24 453:18 456:3 wrong 53:14 56:21 76:20 116:9 130:6 153:10 222:13 258:1 270:15 318:2 348:3,5 348:15 wrote 181:21 206:18 257:9 355:25 435:9 470:6 Wu 351:13,14	170:2 171:14 174:12 175:6 178:5 179:10 179:25 180:14 181:14 182:19 194:2 195:17 195:17 199:21 200:19 204:7,9 207:8 209:8,8 209:8 216:8,23 220:21 221:11 227:9,19,22 229:7 242:8 243:13 245:5 252:4,10,17 254:13 257:13 259:16 264:7 265:14 269:6 275:7 280:8 282:25 291:22 296:12,16 299:17 300:16 304:9 307:21 310:9 311:25 313:2 314:3,7 316:2,5 317:18 317:25 320:14 325:20 328:1 330:14,18 331:19 338:8 342:15 350:5 351:5 356:5 359:21 365:8 365:21 366:17 367:5,12 370:13 378:13 386:20 388:18 398:7,8,9 399:19 400:6 403:7 417:8 419:11,18 420:19 426:14 436:6 438:6 446:9 454:12 456:2 year 36:21 49:20 389:11,17	years 33:5 45:21 46:2 51:2 108:17 152:14 152:19,20 155:14 175:1 185:15 189:18 201:23 316:20 391:9 418:4,9 445:6,7,9 457:13 458:10 458:17,18 yell 113:12 218:12 yelling 115:4 218:16 219:12 219:14,16 yellow 30:18,22 yep 204:18 211:14 212:12 212:15 215:3 285:4 328:23 367:5 417:2,4 yes/no 371:13 404:6 yesterday 17:12 yielded 331:16 yields 340:19 York 5:11	0 0.01 319:12 0.03 351:1 0.05 8:23 297:1 302:14 305:22 308:18 309:23 311:15 316:16 316:17 318:20 319:1,11 351:1 361:8 0.05' 9:11 0.40 328:19 0.5 319:4 0.7 328:18 329:6 329:7 330:12 336:14 339:23 340:25 343:15 344:15,23 0.70 330:20 332:15 333:17 334:8 347:5 0.8 367:17 0.94 359:25 000004999 8:18 000005003 8:18 000013131 9:22 07701 3:22 08542-3792 4:21	1.01 352:21 361:15 1.02 352:21 1.03 352:21 1.05 352:16 353:3 1.1 353:20 367:17 368:3 368:15 400:21 1.10 328:19 1.16 365:23 1.163 365:14 1.17 399:11 1.18 367:1 1.2 353:10,20,21 354:3,10,12,13 354:14,15,20 354:22,23 355:4,9 361:19 365:6 367:17 368:4,15 379:16,23 1.23 367:3 1.245 365:17,21 365:22 1.3 361:4,20 379:16,23 1.43 399:11 1.7 364:4,8 1.75 387:18,22 1.9 364:5,8 1/15/2018 25:7 1:52 280:10 10 7:16 133:19 133:20 134:8 329:7 330:12 341:1 361:14 471:15 10:07 89:3 10:20 89:7 100 10:25 100,000 37:10 40:3 1001 4:12 100C 259:19 393:17 11 7:19 138:22
X x 1:3,12 6:8 7:1 8:1 9:1 10:1 11:1 12:1 54:12 58:12 X-axis 465:18				
Y Y-axis 465:18 yeah 16:20 26:23 28:20,20 30:7,24 32:12 44:23 56:3 58:3,20,21,23 66:13 71:20 75:22,22 76:10 77:5 79:14 80:11 84:13 85:9,20 87:9 91:1 93:16,22 94:1 108:17 111:8 116:4,21 120:25 122:18 123:1 128:11 131:19 132:4 136:3 141:7 146:15 151:15 164:4 167:14		Z Zambelli-Wei... 229:11 Zazenski 11:25 438:9 443:7,9 443:16 zero 84:10 305:23 328:14 458:20,23,23 458:24,25 459:3,9,18,18 459:19,20 465:9,10,15 466:3,7,8,8,8 466:10,21 467:9 zig-zaggy 463:1 zillion 311:3	1 1 6:11 11:22 16:13,14,17 379:9 385:13 400:23 404:20 443:10 1-point 380:7 1.0 346:7 347:9 347:10,22 348:14 349:10 349:21,22,23 349:25 350:2 350:13 351:7 352:2,18,18,22 352:25 353:20 359:15,25 1.00 347:17 349:25 352:20	

138:23 139:2	174:20 6:18	332:15 333:18	399:8	5:13,20
11:14 151:17	8:22 296:19,23	334:9 339:24	2008 369:8,15	21 9:15 123:15
11:24 151:20	297:14 298:5	340:16 343:16	390:12 398:18	271:10,13,14
110 172:6	298:22,23,23	344:14,23	425:13,14	276:15 277:15
12 7:22 8:10	298:24 299:19	347:6	2009 346:17	324:17,18,24
213:4,4,7,9	299:21 308:22	2.61 398:15	390:13	325:24 327:10
280:22,22,23	309:16	2.73 398:11	201 4:20	327:19 346:3,9
12/14/2018	17,103.75 25:5	2.75 398:2	2010 259:7	21204 2:7
22:19 25:4	18 6:22 9:4	2.8 11:4 394:5	2011 388:18	213 7:24
12:08 204:19	140:3 297:17	396:21 397:14	390:12	215 5:7
12:43 204:22	297:18,21	399:14	2012 259:19	219 400:21
127 3:21	298:3,10,11,11	2.82 398:15	388:15,19	22 9:19 233:22
12th 231:12	305:6	2/12/2019 25:10	389:3,14,24	234:14 236:16
236:1	1825 3:7	2/25 21:20 22:11	390:6,14,19	237:17 327:23
13 8:4 235:17,18	19 4:5 9:7 269:8	22:13	2013 463:18	327:24 328:5
244:7,10 246:6	308:6,7,25	2:04 280:14	2014 11:22	22,000 36:20
247:1,16,22	19103-69896 5:6	2:44 320:18	139:13 346:15	226 172:8,15
248:4,10 251:4	1961 285:9	2:53 320:21	431:23	22nd 140:17
324:4,5 325:4	1976 286:1	20 9:12 23:8	2015 366:2	23 10:4 20:19
325:13 326:1	1979 285:10	25:16 276:15	2016 295:19	343:3 366:11
133 7:18	1982 286:1	311:24 312:5,9	296:10,12	231 45:13
138 7:21	397:23 398:6	361:14 379:15	2017 29:4,5	232-5507 4:14
14 6:3 8:11 33:1	463:14	380:20 418:4,9	55:22 56:6,12	235 8:10
68:9 69:12	1983 328:6,18	445:6,7,9	92:6,10 108:13	24 10:8 280:22
71:8,19 87:11	1986 285:9	474:16	121:9,13	349:19 369:16
244:7,10 246:6	1988 285:11	20,973.75 25:13	142:25 150:19	25 10:13 23:8
247:1,16,22	1990 117:12	200 121:18	163:14 185:7	25:17 308:19
248:4,11 251:4	1993 117:13,16	124:8,15	185:16 242:3	325:6,11,13
267:7,8 324:4	1995 42:16	144:24 145:12	2018 8:15 67:1	345:4,16
324:6 325:4,11	43:16	458:9,18	67:13 68:9	377:16
325:13 326:2	1996 281:23	2000 5:5 361:3	69:13 70:21	253 393:20,22
328:24 414:11		394:3 463:6,9	71:1,8,19	393:23 396:19
14,000 36:21	2	463:16	197:3,6 271:17	397:15
1440 5:11	2 6:14 17:18,19	20004 4:13	359:23 364:13	254 396:21
14807-96-6 8:13	17:23,25 18:19	20004-1454 5:19	424:4	397:15
149 172:7	22:3 83:11	20005 5:12	2019 1:17 8:10	256 394:6
14th 67:1,13	84:2 123:15	20006 3:9	13:6 21:13,16	25th 21:13,16
70:20,20 71:1	209:23 210:25	2001 400:25	22:6 121:15	22:6 208:4
15 8:16 281:19	290:1 292:9	2003 43:15	140:17 208:5	264:11
281:23	379:14 443:2	45:10	236:1 264:11	26 10:19 377:16
16 6:13 8:19	2.0 380:16	2004 11:24	296:15,19,24	393:3,10
289:20,22	2.13 398:10	438:8,25 439:4	297:23 298:15	267 8:15
414:11	2.20 398:24	441:10,14	305:10 308:19	27 10:23 290:22
16-2738 1:5	2.27 398:24	2005 398:13	315:10 374:17	392:25 393:1
167 121:10	2.41 398:3	2006 261:13	427:19 470:17	393:14
147:5,12	2.5 329:6 330:11	378:5 394:3	471:15	2738 13:13
364:20	330:21 331:16	2007 347:16	202 3:10 4:14	28 11:4 140:3

276:15 277:14 396:25 397:1,4 281 8:18 289 8:21 29 11:8 413:23 414:4 297 8:23 299 9:6	36 257:12 36's 86:16 36-page 86:17 3600 420:21 366 10:7 369 10:12 37 83:9 85:9,9,9 86:23 371-7000 5:13 377 10:18,22 392 10:25 396 11:7	467 6:5 48 85:1,7 87:11 257:12,13 485 23:13 24:2,6 177:18,23	700 3:8 72 257:13 720-1288 4:7 73 296:24 400:25 732 3:23 747-9003 3:23 783-6400 3:10
3	4	5	8
3 6:19 18:15,20 18:24 20:4 21:14 22:3 76:7 123:16 325:6 3.5 389:6 3/15/19 22:20 3/15/2019 23:2,6 3:09 338:13 3:10 338:17 3:50 377:9 30 11:12,23 45:21 46:2 181:19 269:11 379:16 380:20 416:18,19 438:25 472:12 30(b)(6) 81:23 308 9:11 30th 438:8 31 11:15 181:20 233:22 234:14 236:16 237:17 427:4,5 312 9:14 316 3:15 32 11:20 349:8 431:14,17,18 437:23 324 9:18 32502 3:16 327 9:22 33 11:23 437:19 437:21,22 34 12:4 376:25 442:19,22 35,375 25:11	4 6:23 44:20 45:2 243:6 4:10 377:12 4:59 426:16 40 45:21 46:2 298:17 299:11 391:9 457:12 400 23:13,16,24 24:19 25:17 177:22 178:7,7 458:10,18 401 4:11 41 85:8,19 413 11:11 416 11:14 42 256:5 427 11:19 43 301:9,16 309:10 310:14 431 11:22 435-7000 3:17 437 11:25 438 284:16,17 439 283:22 284:16,18 285:1 44 6:24 442 12:6 45 416:24,25 417:1 46 85:12 463-2400 5:20 465 6:4	5 7:4 35:13 52:7 52:10,11,21,25 54:4,7 122:18 243:8 349:21 433:3,3 5,068.02 25:8 5:12 426:19 5:30 447:10 5:37 447:13 5:53 464:12 5:58 464:15,19 5:59 464:22 50 156:1,2 50,000 197:16 197:23 500 458:12 51 170:11 172:5 212:3 336:18 5129 471:19 52 7:5 53 85:12 58 172:5	8 7:11 95:11,13 95:14 100:9,10 8:58 1:18 13:7 800 306:22 307:17,18 312:1,6 313:23 82 7:7 222:14 85 25:18 178:1 178:10 850 3:17 89 285:21
		6	9
		6 7:6 76:9 82:8,9 86:14 123:1 244:14 359:25 6:04 470:16,21 609 4:22 61 289:20	9 1:17 7:14 98:23,24 101:20 9:03 19:10 9:04 19:13 9:25 44:15 9:27 44:18 903 2:6 13:9 91 7:10 92 285:21 92660 4:6 94 350:18 949 4:7 95 7:13 975 5:18 98 7:15 986-1104 4:22 988-2706 5:7 99 385:13 9th 4:11 13:6 470:17
		7	
		7 7:8 26:2 28:24 29:12 31:13 34:4 42:15,22 42:24 43:2,5 43:10 91:4,5 121:5 325:10 345:5,5,17 70 286:1	

Exhibit 10

**Report of Jonathan Borak, MD, DABT
February 25, 2019**

I. Introduction

1. I am Clinical Professor of Epidemiology & Public Health and Clinical Professor of Medicine at Yale University, a faculty member of the Yale Occupational and Environmental Medicine Program, and Adjunct Associate Professor of Medicine at The Johns Hopkins University. I am also President of Jonathan Borak & Company, a consulting firm in New Haven, Connecticut.

2. I received my B.A. with honors from Amherst College in 1968 and my M.D. from New York University in 1972. I am Board Certified in Internal Medicine, Preventive Medicine (Occupational Medicine) and Toxicology (American Board of Toxicology). I am a Fellow of the American College of Physicians, the American College of Occupational and Environmental Medicine, the Royal College of Physicians of Canada, the Academy of Toxicological Sciences, and the American Industrial Hygiene Association.

3. Among my Yale activities, I have directed and taught two required graduate-level courses (Principles of Toxicology and Principles of Risk Assessment) for nearly twenty years. I also lecture in number of other graduate-level courses including occupational epidemiology, environmental exposure assessment, and environmental health.¹ From 2002-2010 I was Director of the Yale University Interdisciplinary Risk Assessment Forum. I also participate in the supervision and training of Fellows and other resident physicians in the Yale Occupational and Environmental Medicine Program.

4. I served as an elected Director of the American College of Occupational and Environmental Medicine (ACOEM) from 1999-2002 and as Chair of the ACOEM Council on Scientific Affairs from 1999-2012. I was a founding member of US EPA's National Advisory Committee to Develop Acute Exposure Guideline Levels for Hazardous Substances, a member of the National Research Council Committee on Toxicologic Assessment of Low-Level Exposures to Chemical Warfare Agents, a member of a National Institute of Environmental Health Sciences review panel on Partnerships for Environmental Public Health, and a member of an External Review Panel for the National Institute for Occupational Safety and Health. I was President of the Occupational and Environmental Medicine Association of Connecticut, President of the Connecticut College of Emergency Physicians, and Chairman of the Connecticut State Medical Society Committees on Preventive Medicine and on Emergency Medical Services.

¹ Along with the principles of toxicology (e.g., dose-response; toxicokinetics) and risk assessment (e.g., bases for risk extrapolation), my teaching includes the following topics of possible relevance to the present matter: design, development and interpretation of epidemiological studies (e.g., cohort vs. case-control; prospective vs. retrospective); causal inference (e.g., Hill's Postulates, Koch's Postulates); and, biological models of cancer.

5. I am a member of the Editorial Boards of Journal of Occupational and Environmental Medicine, Journal of Occupational and Environmental Hygiene, and Occupational Medicine. I served as Associate Editor of OEM Report, as a member of the Editorial Board of the American Industrial Hygiene Association Journal, and currently serve as a peer reviewer for numerous medical and scientific publications.

6. I have written numerous books, monographs, book chapters, peer-reviewed articles and other publications on a range of topics in occupational medicine, toxicology, epidemiology and industrial hygiene. For example, I was Associate Editor of *A Practical Approach to Occupational and Environmental Medicine* (Lippincott, 2003), Editor and Course Director of *Core Curriculum in Environmental Medicine* (ACOEM, 1994), principal author of *Medical Management Guidelines for Acute Chemical Exposures* (ATSDR, 1994), and senior author of a textbook on toxic emergencies (*Hazardous Materials Exposure: Emergency Response and Patient Care*, Prentice-Hall, 1991).

7. I have received numerous awards from ACOEM including: the President's Award in 1994, 2000 and 2008; the Adolph G. Kammer Merit in Authorship Award in 2003; the Robert A. Kehoe Award of Merit in 2004; and the George H. Gerchman Memorial Prize in 2005. I also received the Harriet Hardy Award from the New England College of Occupational and Environmental Medicine in 2012.

II. Scope of Engagement

8. In the present matter, I was asked by Tom Locke of Seyfarth Shaw to review published and peer-reviewed scientific literature relevant to the alleged association between perineal use of talc-containing powders and ovarian cancer. I was specifically asked to analyze the above materials from a chronological perspective in order to evaluate whether, when and by whom it had been determined that perineal use of talc-containing powder causes ovarian cancer.

9. I also considered expert reports produced in both the federal multi-district litigation (MDL) and prior talc-ovarian cancer litigation, expert depositions, and expert trial testimony concerning the alleged relationship between perineal use of talc-containing powders and ovarian cancer. To better understand those opinions, I reviewed the experts' peer-reviewed publications along with their opinions and testimony to determine when they first reached their conclusions. I also reviewed the broader published literature and the published opinions of well-regarded and authoritative agencies and institutions in order to determine whether there was general support for the experts' opinions.

10. The expert materials that I reviewed are listed in Attachment 1. Attachment 2, "Materials Considered", is a list of books, reports, and articles in my library that I have reviewed and that are relevant to my understanding of the issues raised in this litigation. Overall, I read numerous published studies concerning talc, asbestos and ovarian cancer, including many of the references authored by the experts listed in Attachment 1 and those cited in their expert reports and testimony.

III. Background

11. The first epidemiological study suggesting a link between perineal talc exposure and ovarian cancer was a 1982 case-control study by Dr. Daniel Cramer, one of the experts identified by plaintiffs in prior talc litigation (1). I reviewed the opinions of other experts who testified on behalf of plaintiffs in prior talc litigation. Along with Dr. Cramer's opinions, I include in my report an analysis Drs. Colditz and Ness's opinions because all three wrote frequently regarding the possible link between perineal talc exposure and ovarian cancer and because their contributions were emphasized by plaintiffs, who described Dr. Cramer as "the expert" with a "massive amount of expertise", described Dr. Colditz as "the number one scientific expert in the world", and referred to Dr. Ness' "body of work investigating talcum powder and ovarian cancer" [Plaintiffs Response to Motion to Exclude, 07/18/2016; Kemp Hearing Opening Statement 08/08/2016].

12. Between 1982 and 2000 another 16 case-control studies were published, and at least eight additional case-control studies were published after 2000. There have also been at least four reports of cohort studies, at least eight meta-analysis and pooled analyses, as well as numerous systematic reviews all addressing the possible link between perineal talc use and ovarian cancer.² In other words, the possible link between perineal talc use and ovarian cancer has been the subject of repeated study, reanalysis, and review.

Despite such extensive efforts, science has not established that perineal talc use causes ovarian cancer. For example, a 2014 editorial in the prominent *Journal of the National Cancer Institute* concluded: "Overall, the evidence regarding carcinogenicity of talc use remains inconclusive" (2). Very recently, in a statement dated 12/21/18, the National Cancer Institute (NCI) concluded: "The weight of evidence does not support an association between perineal talc exposure and an increased risk of ovarian cancer" (3).

² Epidemiological studies, regardless of their design, are observational, not experimental. Among the most common study designs are case-control and cohort studies.

Case-control studies compare the experience (e.g., risk factors) of persons with a disease and a suitable control group without the disease. They are often thought of as "retrospective" because disease status is determined retrospectively (i.e., subjects enter the study after diagnosis). Risk status is usually determined retrospectively, but some case-control studies ("nested case-control study") are constructed using retrospective disease status, but prospectively determined risk status based on data from a previously initiated, prospective cohort study that included the case-control study subjects.

Cohort studies evaluate the development of disease over time in a defined population of subjects (the "cohort") who were disease-free at the start of the study. These studies aim to determine the risk factors that predict future disease development. Risk status is determined at the start of the study (i.e., before disease development) and may be periodically updated during the study. In most cases, both disease and risk status are determined prospectively, but "retrospective cohort studies" can be constructed.

Meta-analyses combine the results of independent, similar (but non-identical) studies to calculate quantitative summaries of the studies. One component of meta-analyses is the determination of which studies are appropriate to combine. A second is the arithmetic combination of the numerical information from those studies. Published guidelines provide recommendations for determining the appropriateness of studies and for the calculation of meta-analytical results. Meta-analyses that reanalyze the underlying studies and combine the raw data from those studies are referred to as "pooled analyses".

13. Nevertheless, many of plaintiffs' MDL experts have opined that perineal use of talc-containing powder can cause ovarian cancer. Their opinions are contained in expert reports and deposition testimony. To better understand those opinions, I reviewed their peer-reviewed publications along with their opinions and testimony to determine when they first reached their conclusions. I also reviewed the broader published literature and the published opinions of well-regarded institutions in order to determine whether there was general support for plaintiffs' MDL experts' opinions.

14. To facilitate my discussion, I compiled a non-exclusive "Chronology of Opinions" (Attachment 3) which presents statements quoted from the scientific literature, the opinions of well-regarded institutions, plaintiffs' MDL experts, and three of plaintiffs' former experts. I will refer to those Attachment 3 statements in the discussion below.

IV. Discussion

Prior to 2000:

15. Prior to 2000, the possibility that perineal talc use caused ovarian cancer was regarded, at best, as "equivocal" (4) and "viewed with skepticism" (5). Contributing to that skepticism were the "weak" association between talc and cancer, "poor dose response relationships", potential bias and confounding, and an insufficiency of empirical data (4-7). The proposed relationship was further obscured by a 1996 study of women undergoing "incidental oophorectomy", some reporting "frequent" applications of perineal talc and others reporting none. All of the women had talc in their ovaries: "Talc particle counts were completely unrelated to reported levels of perineal talc exposure" (8).

16. The IARC asbestos monographs in 1973 (9) and 1977 (10) did not mention ovarian cancer in any context. In 1987, IARC noted that "some excess of ovary cancer has been reported in two studies, but not in another" (11); there was no further discussion of ovarian cancer.

17. The opinions of the plaintiffs' prior experts reflect that skepticism. For example, in deposition testimony, Dr. Cramer agreed that, in 2000, he viewed the association between talc and ovarian cancer as "still a hypothesis" [deposition re: Berg, p.22]. Likewise, in his deposition, Dr. Colditz testified that, in 2000, he was not of the opinion that "talc use can cause ovarian cancer" [deposition re: Hogans, p. 298]. Finally, as discussed below, Dr. Ness testified that evidence of the association was "insufficient" until at least 2004 [deposition re: Blaes, p. 255-6]. I have found no published evidence that any of the plaintiff's MDL experts expressed opinions about talc and ovarian cancer prior to 2000.

18. In sum, Drs. Colditz, Cramer and Ness agreed that, prior to 2000, there was insufficient evidence that perineal talc use caused ovarian cancer. None of plaintiffs' MDL experts disagree with that view.³

2000-2008:

19. In 2006, an IARC communication was published from a Monograph Working Group that evaluated the carcinogenicity of talc (12). The IARC working group found that there was only "limited evidence for the carcinogenicity of perineal use of talc-based body powder" and classified this use as: "*possibly carcinogenic to humans (i.e., Group 2B)*". Dr. Siemiatycki was the Chair of that meeting.

In 2008, a meta-analysis was published by three members of that IARC working group, including Dr. Siemiatycki. Their analysis included 20 case-control studies, all but one published by 2004, and it identified eight studies deemed by the IARC working group to be "most informative". The meta-analysis concluded:

"The current body of experimental and epidemiological evidence is insufficient to establish a causal association between perineal use of talc and ovarian cancer risk" (13).

That year, Dr. Cramer co-authored a study that combined case-control and cohort data. The report described the association between perineal talc use and ovarian cancer as:

"controversial due to the lack of a clear dose-response with increasing frequency or duration of talc use, the possibility of confounding or other biases, and the uncertain biological mechanism." (14)

20. Drs. Ness, Colditz and Cramer were asked about the opinions that they held around that time. Dr. Ness testified that, based on the studies then available, there was insufficient evidence in 2004 that perineal talc use caused ovarian cancer (deposition re: Blaes, p. 255-6). Dr. Colditz testified that because of persistent inconsistency among the published studies, in 2004 it was unclear whether talc altered cancer risk (deposition re: Hogans, p. 436). Dr. Cramer, asked about his opinions prior to 2007, testified that "several things have happened since then ... we've built up a case ... a stronger biological argument ... These have all developed since 2007 in my mind" [deposition re: Blaes, p. 150-1].

Dr. Siemiatycki, in a 2016 expert report, "concurred with that evaluation" (i.e., the conclusion of the 2008 meta-analysis that the evidence was then "insufficient" to establish causation).

³ With the exception of Dr. Siemiatycki, before 2018, none of plaintiffs' MDL experts published on the topic of perineal talc use and ovarian cancer. Below, I discuss Dr. Siemiatycki's prior publications on that topic. In my chronology, I note when plaintiffs' MDL experts published on that topic.

21. Thus Drs. Colditz and Ness agreed that prior to 2004 there was insufficient evidence that perineal talc use caused ovarian cancer, Dr. Siemiatycki testified that that he held that opinion based on “the evidence” up to “2005, 2006”, and Dr. Cramer agreed that there was insufficient evidence prior to 2007.

2009-2012:

22. In 2010, IARC published *Monograph 93*, which included its complete assessment of talc. As described above in its preliminary communication, IARC found only “*limited evidence in humans*” and concluded: “Perineal use of talc-based body powder is *possibly carcinogenic to humans* (Group 2B)” (15). A 2011 case-control study concluded that “no stronger adjective than “possible” appears warranted at this time” (16). That same year, an abstract co-authored by Dr. Cramer and published in *Proceedings of the American Association for Cancer Research* opined that “The etiology of ovarian cancer is poorly understood but there is clearly a heritable component.” (17).

23. In 2012, IARC published Monograph 100C which included an updated assessment of asbestos (18). It noted that “a causal association between exposure to asbestos and cancer of the ovary was clearly established” and “asbestos causes ... cancer of the ... ovary”.

24. The 2011 version of the *Your Disease Risk* website (copyrighted 2013; on-line 2015) -- which Dr. Colditz directs at Siteman Cancer Center -- listed nine risk factors for ovarian cancer; it did not list talc (19). In a deposition [re: Hogans], when asked about the level of evidence that was necessary before a risk would be included on that website, Dr. Colditz testified:

“On Your Disease Risk website, the consensus opinion was that definite and probable causes should be included” [deposition re: Hogans, p. 67].

Dr. Colditz also testified that the website was reviewed and updated every three years, that the list of cancer risk factors considered in the review included talc, and that the then most recent review was completed in 2011 [deposition re: Hogans, p. 57-8]. It is notable that the website list of Contributors included Dr. Colditz, Dr. Cramer, and Dr. Susan Hankinson, a Member of the IARC Working Group on Talc (15), a co-author of the 2008 meta-analysis discussed above (13), and an author of at least three other reports on talc and ovarian cancer (13;14;20;21).

25. Thus, in 2011 the Your Disease Risk review committee (including Drs. Colditz, Cramer and Hankinson) determined that the evidence linking perineal talc use and ovarian cancer was neither “definite” nor “probable”. That same year, Dr. Cramer believed the etiology of ovarian cancer was “poorly understood”.

2013-Current:

26. In 2013, “Talc-based body powder (perineal use of)” was listed on the California Safe Cosmetics Program Reportable Ingredients List as a carcinogen. The listing was based on the conclusion of the IARC 2010 Monograph. The California Health and Safety Code requires listing of substances categorized by IARC as Group 1, Group 2A, or Group 2B. As discussed above, IARC found that there was only “*limited evidence* in humans” and concluded that “Perineal use of talc-based body powder is *possibly carcinogenic to humans* (Group 2B)” (15).

27. In 2013, a large pooled analysis of 8 case-control studies (co-authored by Dr. Ness) found a “small-to-moderate” increased risk of ovarian cancer in perineal powder users, but also reported that among powder users there was “no significant trend in risk with increasing number of lifetime applications” (22).

28. In a 2013 deposition, Dr. Cramer testified that he was “not aware” of “any peer-reviewed paper” that made the statement that talc causes ovarian cancer [deposition re: Berg, p. 211].

29. In 2014, a large cohort study of postmenopausal women concluded that perineal powder use did not influence risk of ovarian cancer:

“Ever use of perineal powder was not associated with risk of ovarian cancer compared with never use. Individually, ever use of powder on the genitals, sanitary napkins, or diaphragms was not associated with risk of ovarian cancer compared with never use, nor were there associations with increasing durations of use ... Based on our results, perineal powder use does not appear to influence ovarian cancer risk.” (21)

An editorial published in the same issue as that cohort study report opined that: “Overall, the evidence regarding carcinogenicity of talc use remains inconclusive” (2).

30. In 2015, Dr. Ness presented a poster at a meeting of the International Gynecologic Cancer Society which concluded that “Hill’s tenets suggest that talc use causes ovarian cancer” (23). Subsequently, however, she has not published the contents of that poster or its conclusion in the peer-reviewed literature.

31. In 2015, Dr. Cramer testified that “probably” none of his published papers said that talc caused ovarian cancer [deposition re: Blaes, p. 112]. He also testified that he could not name anyone who had said in a peer-reviewed article that talc caused endometroid ovarian cancer: “nobody said that” [deposition re: Ristensund, p.93]. And, when asked about his opinion that talc carcinogenicity results from altered immune surveillance (“diminution of anti-MUC1 antibodies” (24)), he testified that it was only a hypothesis [deposition re: Blaes, p. 108].

32. In 2016, Dr. Cramer published an updated case-control study that asserted that its findings “present a good case”, but had not been confirmed:

“We believe the observations made here present a good case for talc carcinogenicity and that re-analyses of existing data from already published studies might provide confirmatory evidence” (25).

33. In 2016, Dr. Siemiatycki testified that he had reviewed evidence of an association between talc and ovarian cancer in 2005-2006 and in 2015-2016. Following the earlier review, he concluded that the evidence was insufficient to classify talc as carcinogenic to humans and that it should be classified as only possibly carcinogenic to humans [deposition re: Oules, p. 111].

He also testified that if he had been asked about his opinion of that association at any time between those two reviews (i.e., between 2006 and 2016), “my spontaneous opinion would have been the opinion I had the last time I looked at the data, which was 2005, 2006” [deposition re: Oules, p. 181].

34. In 2016, Dr. PM Webb, founding member of the Australian Ovarian Cancer Study (a member of the Ovarian Cancer Association Consortium and a component of the large 2013 pooled analysis discussed above (22)) reviewed the epidemiology of ovarian epithelial ovarian cancer (26). She concluded that the association between talc and ovarian cancer was still “uncertain”:

“It is still uncertain whether the association is causal because there is little evidence that risk increases with increasing frequency and/or duration of talc use and the association does not appear to be weaker among women who have undergone procedures such as tubal ligation that would prevent talc from reaching the ovaries.” (26)

35. In 2016, Dr. Steven Narod, Professor of Public Health Sciences, Medicine, and Surgery at the University of Toronto, co-discoverer of the BRAC1 and BRAC2 genes, and the most cited researcher in the world in the field of breast cancer⁴ published a Clinical Commentary on talc and ovarian cancer. He opined that because the magnitude of the estimated risk ratio for ever use of talc and ovarian cancer was so small, it was not “helpful” to rely on such risk ratios for ascribing causation:

“it would be challenging to convince the epidemiology community that there is a danger ... Simply put, a risk ratio of this size falls outside the resolution of most epidemiologic studies.”

“The estimate of a risk ratio of 1.2⁵ ... is not helpful in determining if a specific case is, or is not, the result of talc exposure.” (27)

⁴ <http://www.dlsph.utoronto.ca/faculty-profile/narod-steven/>

⁵ “This estimate is the one generated from the large pooling study and is the level of risk that is under discussion in the media.” (27)

On the other hand, he noted that it was not possible to conclude that there was no evidence of an association.

36. Also in 2016, the Danish Ministry of Environment and Food published a criterion document *Talcum, cosmetic grade (non-fibrous): Evaluation of health hazards and proposal of a health-based quality criterion for ambient air* (28). It did not consider ovarian cancer.

37. In 2017, Berge and colleagues published an updated meta-analysis on perineal use of talc and ovarian cancer. Their analytical findings were generally similar to those of earlier meta-analyses. They concluded that their findings were not sufficient to interpret the association between talc and ovarian cancer as “causal”:

“Several aspects of our results, including the heterogeneity of results between case-control and cohort studies, and the lack of a dose-response with duration and frequency of use, however, do not support a causal interpretation of the association.” (29)

That meta-analysis was published on the website of *European Journal of Cancer Prevention*. As published, it indicated a copyright and publication date of 2017 and “Received 31 August 2016 Accepted 20 December 2016”.

38. In 2018, Berge and colleagues published a different version of their 2017 meta-analysis. The conclusions were similar except that a significant change was made to the methodology and findings related to dose-response:

“Several aspects of our results, including the heterogeneity of results between case–control and cohort studies, however, do not support a causal interpretation of the association.” (30)

That meta-analysis was also published in *European Journal of Cancer Prevention*. It was identical to the earlier version (e.g., same title, same authors, same text) except for the changes related to dose-response and changes of the copyright and publication date to 2018; it continued to indicate “Received 31 August 2016 Accepted 20 December 2016”.

I have been unable to find information explaining the withdrawal, subsequent change and “re-publication” of this article. This is surprising, especially considering the potential impact of the change. It is also notable that both versions have identical DOI identification numbers, and that the prior version is no longer available on the internet. I do not know whether this indicates a conscious effort to conceal the changes, but it is my experience that journals normally publish a correction notice or otherwise provide an explanation for such a change in a published report.⁶

⁶ Dr. Siemiatycki testified that he had read, but did not understand the changes in the statistical methods underlying the revised dose-response conclusion of Berge 2018:

39. In 2018, Penninkilampi and Eslick published results of another updated meta-analysis (31). They began with a historical perspective:

“... while perineal talc use has not been shown to be safe, in a similar regard, a certain causal link between talc use and ovarian cancer has not yet been established.”

They noted the lack of a mechanistic explanation for the association between risk of ovarian cancer and talc:

“The mechanism by which perineal talc use may increase the risk of ovarian cancer is uncertain.”

And they concluded that their analytic findings were “suggestive of a causal association”, but that further studies were necessary to establish a causal relationship.

40. In a 2018 textbook chapter referenced in his expert report, Dr. Saed wrote that the cause of ovarian cancer was “under debate” and that its association with talc was only suggestive:⁷

“Ovarian cancer ... underlying pathophysiology is not clearly established ... The origin and causes of ovarian tumors remains [sic] under debate ...”

“Although there is strong epidemiological evidence to suggest an association between talc use and ovarian cancer, the direct link and precise mechanisms have yet to be elucidated.” (33)

41. In an unpublished manuscript,⁸ Dr. Saed and colleagues described the results of an *in vivo* study that evaluated the responses of cultured cells exposed to talc dissolved in DMSO. The authors state:

“Genital use of talcum powder and its associated risk of ovarian cancer is an important controversial topic ... This is the first study to clearly demonstrate that talc induces inflammation and alters the redox balance favoring a pro-oxidant state in normal and EOC cells.”

“... they've now used a different statistical procedure for evaluating dose-response by duration and frequency, which is embodied in their Table 3, which I don't fully understand.” [deposition, p. 198]

⁷ A similar view was expressed by Dr. Saed in a 2017 article: “... the exact origin(s) and pathogenesis of ovarian cancer still remains [sic] under debate” (32), “talc” was not mentioned in that article.

⁸ A copy of the following manuscript was produced in this litigation and provided to me: N Fletcher et al. “Molecular basis supporting the association of talcum powder use with increased risk of ovarian cancer.” As of 2/22/19, it has not been indexed by the National Library of Medicine (NLM), it has not been published by any NLM-recognized journal, and it is apparently not available on the web.

The authors also wrote that their findings suggested that talc caused human cancer:

“... we have shown that talc enhances cell proliferation and induces an inhibition in apoptosis ... suggesting talc is a stimulus to the development of the oncogenic phenotype.”

The authors did not directly extrapolate their findings, which were specific to the *in vitro* experimental setting, to the *in vivo* development of ovarian cancer in women who use talcum powder.⁹

42. In late 2018, a draft screening assessment of talc was published by Health Canada (38). Its assessment of health risks of perineal talcum powder relied extensively on an unpublished systematic review which is discussed below.¹⁰

Health Canada, in its characterization of risk to human health, stated that perineal use of talc posed a **potential** concern:

“Given that there is the potential for perineal exposure to talc from the use of various self-care products, a potential concern for human health has been identified.”

However, Health Canada also noted uncertainties and limitations to its statement:

“There are limitations with the human epidemiological data ... Ovarian cancer, in general, is not well understood and a comparable animal model is not available.”

43. Health Canada relied on a review by Taher et al. which remains unpublished and is apparently still under peer review as of 2/22/19. I include it in my discussion because it seems potentially relevant.

Taher et al. (39) concluded that talc was a possible cause of ovarian cancer:

⁹ Talc is regarded as insoluble in water, in weak acids and in weak bases. It is only trivially soluble in tissue fluids (34). In this study, talc was dissolved in DMSO, an industrial solvent not found in the body, which was used as a carrier solvent: “DMSO can have a profound solubilizing effect on less soluble agents ... increasing penetration simply by delivering a higher concentration ...” than would otherwise be possible (35). The DMSO-talc mixture was then “filtered with a 0.2 µm syringe filter”, hence talc crystals were removed. (Talc particles in both JNJ Baby Powder and in talc powders used for pleurodesis are almost entirely > 0.2 µm (36;37)). Thus, cells were exposed *in vitro* to supraphysiological concentrations of dissolved molecular talc, not crystalline talc particles. From a toxicological perspective, the direct relevance of such *in vitro* exposures to those resulting from perineal application of talcum powder seems doubtful.

¹⁰ The Health Canada draft cites the review as “Taher MK ..., 2018 ...[in preparation]”. It is not available on the web and has not been indexed by NLM (as of 2/01/19). I was provided a typescript manuscript by Taher et al titled “Systematic Review and Meta-Analysis of the Association between Perineal Use of Talc Powder and Risk of Ovarian Cancer” (39) and a second manuscript titled “Supplementary Material” (40), which were apparently produced in this litigation.

“...perineal exposure to talc powder is a possible cause of ovarian cancer in humans.”

This conclusion is essentially the same as that of the 2010 IARC assessment.

44. During 2014-2019, statements about the causes and risk factors for ovarian cancer were published on the websites of a number of well-regarded agencies and institutions. In some cases, statements underwent modification during that time span. Following are statements from some of those websites listed in chronologic order; the complete statements are presented in Attachment 4:

Brigham and Women's Hospital (2014): “The cause of ovarian cancer is not yet known”. The website did not list talc as a risk factor for ovarian cancer (41).

Cancer Council of Australia (2015): “Inferred Risks: Perineal use of talc-based body powder: Not supported by relevant experimental findings.” (42)

World Cancer Prevention Fund (2017): “Some studies have found a link between talcum powder (talc) and ovarian cancer, but there's not enough evidence to be certain of this. Even if there were an increased risk, scientists estimate it would be small.” (43)

Centers for Disease Control and Prevention (2018): The website does not list talc as a cause or risk factor for ovarian cancer (44).

American Cancer Society (2018): “It has been suggested that talcum powder might cause cancer in the ovaries ... Many studies in women have looked at the possible link between talcum powder and cancer of the ovary. Findings have been mixed ... For any individual woman, if there is an increased risk, the overall increase is likely to very be small.” (45)

National Cancer Institute (2018): “Studies of women who used talcum powder (talc) dusted on the perineum (the area between the vagina and the anus) have not found clear evidence of an increased risk of ovarian cancer” (46).

Ovacome (2018): “There have been worries for some years that using talcum powder on the genital area may increase the risk of ovarian cancer. However, so far this has not been proved by research.” (47)

Siteman Cancer Center (Your Disease Risk) (2018): As of March, 2017, this website listed nine risk factors for ovarian cancer; it did not list talc. In 2018, the following statement was added: “The regular use of talcum powder in the genital area has been linked to an increased risk of ovarian cancer. It is not clear exactly why this is.” (48)

National Cancer Institute (2019): "The weight of evidence does not support an association between perineal talc exposure and an increased risk of ovarian cancer." (49)

Brigham and Women's Hospital (2019): "It's not clear if using talcum powder on the genital area raises the risk for ovarian cancer. Talk with your healthcare provider if you decide that you want to use talcum powder." (50)

45. In summary, I conclude that science has not established that perineal talc use causes ovarian cancer. The most recent meta-analyses (including the unpublished Taher report) concluded that results were only "suggestive," that a causal link "has not yet been established," and that perineal exposure to talc powder is only "a possible cause of ovarian cancer in humans", affirming IARC's 2006 conclusion that perineal use of talc was "*possibly carcinogenic to humans (i.e., Group 2B)*". As of 2/22/19, well regarded websites (including CDC, NCI, ACS, and Cancer Council of Australia) do not list talc as a cause of ovarian cancer.

V. Conclusion

46. Outside of reports and testimony by litigation experts, the strongest published statement I have found regarding the proposed carcinogenicity of perineal talc is the 2010 IARC conclusion that the evidence is "*limited*" and that it is "*possibly carcinogenic to humans*", a conclusion that has been repeated in the most recent studies and reports.

47. Accordingly, it is my opinion to a reasonable degree of scientific certainty that science has not established that perineal talc use causes ovarian cancer.

48. I reserve the right to revise my opinion in the event that additional information becomes available.

February 25, 2019



Jonathan Borak, MD

Reference List

- (1) Cramer DW, Welch WR, Scully RE, Wojciechowski CA. Ovarian cancer and talc. A case-control study. *Cancer* 1982; 50:372-376.
- (2) Wentzensen N, Wacholder S. Talc use and ovarian cancer: epidemiology between a rock and a hard place. *JNCI* 2014; 106.
- (3) National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention-for Health Professionals (PDQ®) (at:https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#cit/section_3.46). Washington, DC: National Cancer Institute; 2018.
- (4) Gross AJ, Berg PH. A meta-analytical approach examining the potential relationship between talc exposure and ovarian cancer. *J Expo Anal Environ Epidemiol* 1995; 5:181-195.
- (5) Cramer DW, Liberman RF, Titus-Ernstoff L, Welch WR, Greenberg ER, Baron JA et al. Genital talc exposure and risk of ovarian cancer. *Int J Cancer* 1999; 81:351-356.
- (6) Harlow BL, Cramer DW, Bell DA, Welch WR. Perineal exposure to talc and ovarian cancer risk. *Obstet Gynecol* 1992; 80:19-26.
- (7) Harlow BL, Hartge PA. A review of perineal talc exposure and risk of ovarian cancer. *Regul Toxicol Pharmacol* 1995; 21:254-260.
- (8) Heller DS, Westhoff C, Gordon RE, Katz N. The relationship between perineal cosmetic talc usage and ovarian talc particle burden. *Am J Obstet Gynecol* 1996; 174:1507-1510.
- (9) International Agency for Research on Cancer. Asbestos. IARC Monogr Eval Carcinog Risks Hum 1973; 2.
- (10) International Agency for Research on Cancer. Asbestos. IARC Monogr Eval Carcinog Risks Hum 1977;(14):1-106.
- (11) International Agency for Research on Cancer. Overall Evaluations of Carcinogenicity: An updating of IARC Monographs Volumes 1 to 42. 7 ed. Lyon: IARC; 1987.
- (12) Baan R, Straif K, Grosse Y, Secretan B, El Ghissassi F, Coglianov V. Carcinogenicity of carbon black, titanium dioxide, and talc. *Lancet Oncol* 2006; 7:295-296.
- (13) Langseth H, Hankinson SE, Siemiatycki J, Weiderpass E. Perineal use of talc and risk of ovarian cancer. *J Epidemiol Community Health* 2008; 62:358-360.

- (14) Gates MA, Tworoger SS, Terry KL, Titus-Ernstoff L, Rosner B, De Vivo I et al. Talc use, variants of the GSTM1, GSTT1, and NAT2 genes, and risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers Prev* 2008; 17:2436-2444.
- (15) International Agency for Research on Cancer. Carbon Black, Titanium Dioxide, and Talc. *IARC Monogr Eval Carcinog Risks Chem Human* 2010; 93:277-413.
- (16) Rosenblatt KA, Weiss NS, Cushing-Haugen KL, Wicklund KG, Rossing MA. Genital powder exposure and the risk of epithelial ovarian cancer. *Cancer Causes Control* 2011; 22:737-742.
- (17) Chen YA, Chen Z, Tsai Y-Y, Qu X, Iversen E, Barnholtz-Sloan J et al. Pathway and gene set analysis for epithelial ovarian cancer (EOC) genome wide association study (GWAS). [Abstract 4729] In *Proceedings of the 102nd Annual Meeting of the American Association for Cancer Research*, April 2-6, 2011. *Cancer Res* 2011; 71 (Suppl 8).
- (18) International Agency for Research on Cancer. Asbestos (Chrysotile, Amosite, Crocidolite, Tremolite, Actinolite, and Anthophyllite). *IARC Monogr Eval Carcinog Risks Chem Human* 2012; 100C:219-309.
- (19) Siteman Cancer Center. Your Disease Risk (at: <http://www.yourdiseaserisk.wustl.edu/>). St. Louis: Siteman Cancer Center; 2013.
- (20) Gertig DM, Hunter DJ, Cramer DW, Colditz GA, Speizer FE, Willett WC et al. Prospective study of talc use and ovarian cancer. *JNCI* 2000; 92:249-252.
- (21) Houghton SC, Reeves KW, Hankinson SE, Crawford L, Lane D, Wactawski-Wende J et al. Perineal powder use and risk of ovarian cancer. *JNCI* 2014; 106.
- (22) Terry KL, Karageorgi S, Shvetsov YB, Merritt MA, Lurie G, Thompson PJ et al. Genital powder use and risk of ovarian cancer: a pooled analysis of 8,525 cases and 9,859 controls. *Cancer Prev Res (Phila)* 2013; 6:811-821.
- (23) Ness R. Does talc exposure cause ovarian cancer? (IGCS-0015). *International Journal of Gynecological Cancer* 2015; 25 (Suppl 1):51.
- (24) Cramer DW, Titus-Ernstoff L, McKolanis JR, Welch WR, Vitonis AF, Berkowitz RS et al. Conditions associated with antibodies against the tumor-associated antigen MUC1 and their relationship to risk for ovarian cancer. *Cancer Epidemiol Biomarkers Prev* 2005; 14:1125-1131.
- (25) Cramer DW, Vitonis AF, Terry KL, Welch WR, Titus LJ. The association between talc use and ovarian cancer: a retrospective case-control study in two US states. *Epidemiology* 2016; 26:334-346.

- (26) Webb PM, Jordan SJ. Epidemiology of epithelial ovarian cancer. *Best Pract Res Clin Obstet Gynaecol* 2016; still in print.
- (27) Narod SA. Talc and ovarian cancer. *Gynecol Oncol* 2016; 141:410-412.
- (28) Danish Environmental Protection Agency. Evaluation of Health Hazards by Exposure to Talcum, Cosmetic Grade (non-fibrous) and Proposal of a Health-based Quality Criterion for Ambient Air (ISBN: 978-87-93529-23-6). Denmark: Danish Environmental Protection Agency; 2016.
- (29) Berge W, Mundt K, Luu H, Boffetta P. Genital use of talc and risk of ovarian cancer: a meta-analysis. *Eur J Cancer Prev* 2017; DOI:10.1097/CEJ.0000000000000340.
- (30) Berge W, Mundt K, Luu H, Boffetta P. Genital use of talc and risk of ovarian cancer: a meta-analysis. *Eur J Cancer Prev* 2018; 27:248-257.
- (31) Penninkilampi R, Eslick GD. Perineal talc use and ovarian cancer: A systematic review and meta-analysis. *Epidemiology* 2018; 29:41-49.
- (32) Saed GM, Diamond MP, Fletcher NW. Updates of the role of oxidative stress in the pathogenesis of ovarian cancer. *Gynecol Oncol* 2017; 145:595-602.
- (33) Saed GM, Morris RT, Fletcher NM. New Insights into the Pathogenesis of Ovarian Cancer: Oxidative Stress. In: Devaja O, Papadopoulos A, editors. *Ovarian Cancer - From Pathogenesis to Treatment*. 2018. 83-110.
- (34) Jurinski JB, Rimstidt JD. Biodurability of talc. *Am Mineral* 2001; 86:392-399.
- (35) Capriotti K, Capriotti JA. Dimethyl sulfoxide: history, chemistry, and clinical utility in dermatology. *J Clin Aesthet Dermatol* 2012; 5:24-26.
- (36) Gilbert CR, Furman BR, Feller-Kopman DJ, Haouzi P. Description of particle size, distribution, and behavior of talc preparations commercially available within the United States. *J Bronchology Interv Pulmonol* 2018; 25:25-30.
- (37) Klingler GA. Digital Computer Analysis of Particle Size Distribution in Dusts and Powders. (Project 7116) (AD-752209). Wright-Patterson Air Force Base, Ohio: Aerospace Research Laboratories, 1972.
- (38) Talc (Chemical Abstracts Service Registry Number 14807-96-6). Environment and Climate Change Canada; 2018.
- (39) Taher MK, Farhat N, Karyakina NA, Shilnikova N, Ramoju S, Gravel CA et al. Systematic Review and Meta-Analysis of the Association Between Perineal Use of Talc and Risk of Ovarian Cancer. 2018.

- (40) Taher MK, Farhat N, Karyakina NA, Shilnikova N, Ramoju S, Gravel CA et al. Systematic Review and Meta-Analysis of the Association between Perineal Use of Talc Powder and Risk of Ovarian Cancer. (Supplemental Material). 2018.
- (41) Brigham and Women's Hospital. Ovarian Cancer (at:<http://healthlibrary.brighamandwomens.org/Library/DiseasesConditions/Adult/Gynecological/85,P00575>). Boston: Brigham and Women's Hospital; 2014.
- (42) Cancer Council of Australia. Inferred Risk (at: <https://www.cancer.org.au/about-cancer/causes-of-cancer/environmental-causes/inferred-risk.html>). Sydney: Cancer Council of Australia; 2018.
- (43) World Cancer Research Fund. Can cosmetics and toiletries cause cancer? (<https://www.wcrf.org/informed/articles/can-cosmetics-and-toiletries-cause-cancer>). London: World Cancer Research Fund; 2017.
- (44) CDC. Ovarian Cancer (at: https://www.cdc.gov/cancer/ovarian/basic_info/risk_factors.htm). Atlanta: Centers for Disease Control and Prevention; 2018.
- (45) American Cancer Society. Ovarian Cancer (at:<https://www.cancer.org/cancer/ovarian-cancer/causes-risks-prevention/risk-factors.html>). 2019.
- (46) National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention (PDQ) - Patient Version (at: https://www.cancer.gov/types/ovarian/patient/ovarian-prevention-pdq#section/_11). Washington, DC: National Cancer Institute; 2018.
- (47) Ovacom. Talcum powder and ovarian cancer: Fact Sheet 14 (at: <https://www.ovacom.org.uk/talcum-powder-and-ovarian-cancer>). London: Ovacom; 2018.
- (48) Siteman Cancer Center. Your Disease Risk (at:<https://siteman.wustl.edu/prevention/ydr/>). St. Louis: Siteman Cancer Center; 2019.
- (49) National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention—for Health Professionals (PDQ®) (at:https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#section/_9). Washington, DC: National Cancer Institute; 2019.
- (50) Brigham and Women's Hospital. Ovarian Cancer (<http://healthlibrary.brighamandwomens.org/search/34,17170-1>). Boston: Brigham and Women's Hospital; 2019.

Attachment 1:
Expert Reports, Testimony and other Related Materials

I have reviewed the following expert reports and testimony, listed alphabetically and chronologically according to the named experts' last name:

Kurt Barnhart: Testimony re: Ristesund (4/27/2016)
Alan Campion: MDL Report (11/16/18)
Arch Carson: MDL Report (11/16/18)
Lewis Chodosh: Testimony re: Ristesund (4/21/2016)
Lewis Chodosh: Testimony re: Ristesund (4/22/2016)
Daniel Clarke-Pearson: MDL Report (11/16/2018)
Graham Colditz: Report (07/31/2015)
Graham Colditz: Report (10/05/2016)
Graham Colditz: Deposition (re: Hogans) part 1: (09/19/2015)
Graham Colditz: Deposition (re: Hogans) part 2: (10/16/2015)
Graham Colditz: Testimony re: Kemp Hearing (08/16/2016)
Daniel Cramer: Report re: Berg (08/24/2011)
Daniel Cramer: Report re: Blaes (04/16/2015) and attachments
Daniel Cramer: Report re: Fox (07/31/2015) and attachments
Daniel Cramer: Report re: Pfau (07/31/2015) and attachments
Daniel Cramer: Report re: Ristesund (11/01/2015) and attachments
Daniel Cramer: Report re: Oules (10/04/2016)
Daniel Cramer: Deposition re: Berg (09/17/2012)
Daniel Cramer: Deposition re: Blaes (05/18/2015)
Daniel Cramer: Deposition re: Ristesund (11/13/2015)
Daniel Cramer: Testimony re: Ristesund (4/19/2016)
Daniel Cramer: Testimony re: Ristesund (4/20/2016)
Daniel Cramer: Testimony re: Kemp Hearing (08/08/2016)
Daniel Cramer: Testimony re: Oules (12/06/2016)
Michael M. Crowley: MDL Report (11/12/2018)
Mary J. Cunningham: Testimony re: Kemp Hearing (08/12/2016)
John Godleski: Report re: Oules (07/21/2016)
John Godleski: Deposition re: Oules (12/05/2016)
John Godleski: Testimony re: Ristesund (4/18/2016)
John Godleski: Testimony re: Berg (09/26/2013)
John Godleski: Testimony re: Kemp Hearing (08/09/2016)
David Hoel: Deposition re: Blais (09/01/2015)
Michael Huncharek: Report re: Berg (04/23/2012)
Sarah E. Kane: MDL Report (11/15/2018)
Robert Kurman: Testimony re: Ristesund (4/25/2016)
Anne McTiernan: MDL Report (11/16/2018)
Anne McTiernan: Deposition (01/28/2019)
Patricia G. Moorman: MDL Report (11/16/2018)
Joshua: Muscat: Report re: Berg (06/24/2012) and attachments
Joshua: Muscat: Trial Testimony re: Berg (10/01/2013)

Roberta Ness: Report re: Blaes (general causation) (04/2015)
Roberta Ness: Report re: Fox (08/2015)
Roberta Ness: Report re: Hancock (09/2015)
Roberta Ness: Report re: Pfau (08/2015)
Roberta Ness: Deposition re: Blaes (06/09/2015)
Roberta Ness: Deposition re: Fox (10/12/2015)
Roberta Ness: Deposition re: Hancock (09/2015)
Roberta Ness: Deposition re: Pfau (10/14/2015)
Curtis Omiecinski: Report (04/09/2015)
Curtis Omiecinski: Report (09/30/2016)
Curtis Omiecinski: Deposition re: Blaes (05/20/2015)
Curtis Omiecinski: Testimony re: Kemp Hearing (08/15/2016)
Laura Plunket: Report (10/05/2016)
Laura Plunket: Testimony re: Slemp (04/20/2017)
Laura Plunket: Testimony re: Slemp (04/21/2017)
Laura Plunket: MDL Report (11/16/2018)
Laura Plunket: Testimony re: Forrest (12/18/2018)
Gary Rosenthal: Report re: Berg (08/26/2011)
Gary Rosenthal: Report re: Blais (04/16/2015)
Gary Rosenthal: Deposition re: Berg (09/19/2012)
Gary Rosenthal: Deposition re: Blaes (06/11/2015)
Gary Rosenthal: Trial testimony re: Berg (09/27/2013)
Elaine F. Schumacher: Testimony re: Kemp Hearing (08/12/2016)
Ghassan M. Saed: MDL Report (11/16/2018)
Ghassan M. Saed: Deposition (01/23/2019 and 02/14/2019)
Jack Siemiatycki: Report (10/04/2016)
Jack Siemiatycki: Deposition re: Oules (12/15/2016 and 12/16/2016)
Jack Siemiatycki: MDL Report (11/16/2018)
Jack Siemiatycki: Deposition (01/29/2019)
Jack Siemiatycki: MDL Report: Addendum (02/01/2019)
Sonal Singh: MDL Report (11/16/2018)
Sonal Singh: Deposition (01/16/2019)
Ellen Blair Smith: MDL Report (11/16/18)
Rebecca Smith-Bindman: MDL Report (11/15/2018)
David Steinberg: Report re: Blais (04/17/2015)
David Steinberg: Report re: Oules (10/05/2016)
David Steinberg: Deposition re: Blais (06/01/2015)
David Steinberg: Testimony re: Kemp Hearing (08/15/2016)
Douglas Weed re: Testimony re: Kemp Hearing (08/11/2016)
William Welch: Report re: Oules (09/27/2016)
Judith Wolf: MDL Report (11/16/2018)
April Zambelli-Weiner: MDL Report (11/16/2018)
Judith Zelikoff: MDL Report (11/16/2018)

I have also reviewed the following other related materials:

Opinion of Judge Nelson Johnson, re: Kemp Hearing (09/02/2016)

Gilbert Balderrama: Deposition re: Balderrama (11/24/2015)

Maurice Berkowitz: Deposition re: Balderrama (01/05/2016)

Wei-Chien Lin: Deposition re: Balderrama (01/04/2015)

Plaintiffs Amended Disclosure re: Carl (12/18/2015)

Plaintiffs Disclosure of General Expert Testimony re: Carl (12/18/2015)

Rothman KJ, Pastides H, Samet J: Interpretation of epidemiologic studies on talc and ovarian cancer (Unpublished report, 11/28/2000).

Internet websites of agencies and institutions including:

American Cancer Society (ACS); Brigham and Women's Hospital; Centers for Disease Control and Prevention (CDC); Harvard School of Public Health;

International Agency for Research on Cancer (IARC); National Cancer Institute (NCI); Ovacom; Siteman Cancer Center

Attachment 2: Materials Considered

- 1 Hygienic Guide Series: Talc. Am Ind Hyg Assoc J 1982.
Ref ID: 14787
- 2 Talc (Chemical Abstracts Service Registry Number 14807-96-6). Environment and Climate Change Canada; 2018.
Ref ID: 37356
- 3 Aarestrup J, Trabert B, Ulrich LG, Wentzensen N, Sorensen TIA, Baker JL. Childhood overweight, tallness, and growth increase risk of ovarian cancer. Cancer Epidemiol Biomarkers Prev 2019; 28:183-188.
Ref ID: 37427
- 4 Abbott SE, Bandera EV, Qin B, Peres LC, Moorman PG, Barnholtz-Sloan J et al. Recreational physical activity and ovarian cancer risk in African American women. Cancer Med 2016; 5:1319-1327.
Ref ID: 35576
- 5 Abenhaim HA, Titus-Ernstoff L, Cramer DW. Ovarian cancer risk in relation to medical visits, pelvic examinations and type of health care provider. Can Med Assoc J 2007; 176:941-947.
Ref ID: 35800
- 6 Abrao MS, Muzii L, Marana R. Anatomical causes of female infertility and their management. Int J Gynecol Obstet 2013; 123 (suppl 2):S18-S24.
Ref ID: 37213
- 7 Adams SV, Quraishi SM, Shafer MM, Passarelli MN, Freney EP, Chlebowski RT et al. Dietary cadmium exposure and risk of breast, endometrial, and ovarian cancer in the Women's Health Initiative. EHP 2014; 122:594-600.
Ref ID: 36246
- 8 Agarwal AM, Grey TC. Pulmonary talc granulomatosis masquerading as massive pulmonary embolism. Int J Surg Pathol 2009; 17:454.
Ref ID: 29484
- 9 Agic A, Xu H, Finas D, Banz C, Diedrich K, Hornung D. Is endometriosis associated with systemic subclinical inflammation? Gynecol Obstet Invest 2006; 62:139-147.
Ref ID: 37207
- 10 Akinwunmi BO, Babic A, Vitonis AF, Cramer DW, Titus L, Tworoger SS et al. Chronic medical conditions and CA125 levels among women without ovarian cancer. Cancer Epidemiol Biomarkers Prev 2018; 27:1483-1490.
Ref ID: 37308
- 11 Alberg AJ, Moorman PG, Crankshaw S, Wang F, Bandera EV, Barnholtz-Sloan JS et al. Socioeconomic Status in Relation to the Risk of Ovarian Cancer in African-American Women: A Population-Based Case-Control Study. Am J Epidemiol 2016; 184:274-283.
Ref ID: 35687
- 12 Alexandrescu DT, Riordan NH, Ichim TE, Kauffman CL, Kabigting F, Dutton CT et al. On the missing link between inflammation and cancer. Dermatol Online J 2011; 17:1-6.
Ref ID: 34909
- 13 Alfonso L, Ai G, Spitale RC, Bhat GJ. Molecular targets of aspirin and cancer prevention. Br J Cancer 2014; 111:61-67.
Ref ID: 37222
- 14 Ali AT. Fertility drugs and ovarian cancer. Curr Cancer Drug Targets 2018; 18:567-576.
Ref ID: 36342
- 15 Allaire GS, Goodman ZD, Ishak KG, Rabin L. Talc in liver tissue of intravenous drug abusers with chronic hepatitis. A comparative study. Am J Clin Pathol 1989; 92:583-588.
Ref ID: 34945
- 16 American Cancer Society. Ovarian Cancer (at:<https://www.cancer.org/cancer/ovarian-cancer/causes-risks-prevention/risk-factors.html>). 2019.
Ref ID: 37300
- 17 Anastasi E, Capoccia D, Granato T, Silecchia G, Rizzello M, Porpora MG et al. Implementing the Risk of Ovarian Malignancy Algorithm adding obesity as a predictive factor. Anticancer Res 2016; 36:6425-6429.
Ref ID: 35987

- 18 Anderson EL, Sheehan PJ, Kalmes RM, Griffin JR. Assessment of health risk from historical use of cosmetic talcum powder. *Risk Anal* 2017; 37:918-929.
Ref ID: 35619
- 19 Anon. When is a carcinogen not a carcinogen? *Lancet Oncol* 2016; 17:681.
Ref ID: 36106
- 20 Aune D, Navarro Rosenblatt DA, Chan DS, Abar L, Vingeliene S, Vieira AR et al. Anthropometric factors and ovarian cancer risk: a systematic review and nonlinear dose-response meta-analysis of prospective studies. *Int J Cancer* 2015; 136:1888-1898.
Ref ID: 35271
- 21 Aune D, Navarro Rosenblatt DA, Chan DS, Vingeliene S, Abar L, Vieira AR et al. Anthropometric factors and endometrial cancer risk: a systematic review and dose-response meta-analysis of prospective studies. *Ann Oncol* 2015; 26:1635-1648.
Ref ID: 35270
- 22 Avgerinos KI, Spyrou N, Mantzoros CS, Dalamaga M. Obesity and cancer risk: Emerging biological mechanisms and perspectives. *Metabolism* 2019; 92:121-135.
Ref ID: 37253
- 23 Baan R, Straif K, Grosse Y, Secretan B, El Ghissassi F, Coglianò V. Carcinogenicity of carbon black, titanium dioxide, and talc. *Lancet Oncol* 2006; 7:295-296.
Ref ID: 24742
- 24 Baandrup L, Faber MT, Christensen J, Jensen A, Andersen KK, Friis S et al. Nonsteroidal anti-inflammatory drugs and risk of ovarian cancer: systematic review and meta-analysis of observational studies. *Acta Obstet Gynecol Scand* 2013; 92:245-255.
Ref ID: 34910
- 25 Babic A, Harris HR, Vitonis AF, Titus LJ, Jordan SJ, Webb PM et al. Menstrual pain and risk of epithelial ovarian cancer: results from the Ovarian Cancer Association Consortium. *Int J Cancer* 2017; still in print.
Ref ID: 36409
- 26 Bahar-Shany K, Brand H, Sapoznik S, Jacob-Hirsch J, Yung Y, Korach J et al. Exposure of fallopian tube epithelium to follicular fluid mimics carcinogenic changes in precursor lesions of serous papillary carcinoma. *Gynecol Oncol* 2014; 132:322-327.
Ref ID: 37241
- 27 Bandera EV, Qin B, Moorman PG, Alberg AJ, Barnholtz-Sloan JS, Bondy M et al. Obesity, weight gain, and ovarian cancer risk in African American women. *Int J Cancer* 2016; 139:593-600.
Ref ID: 35690
- 28 Barlow CA, Marsh GM, Benson S, Finley BL. The mineralogy and epidemiology of cosmetic talc. *Toxicol Appl Pharmacol* 2018; 361:173.
Ref ID: 37321
- 29 Barnard ME, Hecht JL, Rice MS, Gupta M, Harris HR, Eliassen AH et al. Anti-Inflammatory drug use and ovarian cancer risk by COX1/COX2 expression and infiltration of tumor-associated macrophages. *Cancer Epidemiol Biomarkers Prev* 2018; 27:1509-1517.
Ref ID: 37307
- 30 Barnard ME, Poole EM, Curhan GC, Eliassen AH, Rosner BA, Terry KL et al. Association of analgesic use with risk of ovarian cancer in the Nurses' Health Studies. *JAMA Oncol* 2018; 4:1675-1682.
Ref ID: 37224
- 31 Baron RD, Milton R, Thorpe JA. Pleurodesis using small talc particles results in an unacceptably high rate of acute lung injury and hypoxia. *Ann Thorac Surg* 2007; 84:2136.
Ref ID: 27081
- 32 Belotte J, Fletcher NM, Saed MG, Abusamaan MS, Dyson G, Diamond MP et al. A single nucleotide polymorphism in catalase is strongly associated with ovarian cancer survival. *PLoS One* 2015; 10:e0135739.
Ref ID: 37240
- 33 Beral V, Gaitskell K, Hermon C, Moser K, Reeves G, Peto R et al. Ovarian cancer and smoking: individual participant meta-analysis including 28,114 women with ovarian cancer from 51 epidemiological studies. *Lancet Oncol* 2012; 13:946-956.
Ref ID: 35279
- 34 Berge W, Mundt K, Luu H, Boffetta P. Genital use of talc and risk of ovarian cancer: a meta-analysis. *Eur J Cancer Prev* 2017; DOI:10.1097/CEJ.0000000000000340.
Ref ID: 37447
- 35 Berge W, Mundt K, Luu H, Boffetta P. Genital use of talc and risk of ovarian cancer: a meta-analysis. *Eur J Cancer Prev* 2018; 27:248-257.
Ref ID: 36032
- 36 Bethea TN, Palmer JR, Adams-Campbell LL, Rosenberg L. A prospective study of reproductive factors and exogenous hormone use in relation to ovarian cancer risk among Black women. *Cancer Causes*

- Control 2017; 28:385-391.
Ref ID: 35983
- 37 Birmann BM, Barnard ME, Bertrand KA, Bao Y, Crous-Bou M, Wolpin BM et al. Nurses' health study contributions on the epidemiology of less common cancers: endometrial, ovarian, pancreatic, and hematologic. *Am J Public Health* 2016; 106:1608-1615.
Ref ID: 35624
- 38 Blount AM. Amphibole content of cosmetic and pharmaceutical talcs. *EHP* 1991; 94:225-230.
Ref ID: 36726
- 39 Boffetta P, Mundt KA, Thompson WJ. The epidemiologic evidence for elongate mineral particle (EMP)-related human cancer risk. *Toxicol Appl Pharmacol* 2018; 361:100-106.
Ref ID: 37114
- 40 Boice JD, Jr., Engholm G, Kleinerman RA, Blettner M, Stovall M, Lisco H et al. Radiation dose and second cancer risk in patients treated for cancer of the cervix. *Radiat Res* 1988; 116:3-55.
Ref ID: 37174
- 41 Bonovas S, Filioussi K, Sitaras NM. Do nonsteroidal anti-inflammatory drugs affect the risk of developing ovarian cancer? A meta-analysis. *Br J Clin Pharmacol* 2005; 60:194-203.
Ref ID: 35009
- 42 Boorman GA, Seely JC. The lack of an ovarian effect of lifetime talc exposure in F344/N rats and B6C3F1 mice. *Regul Toxicol Pharmacol* 1995; 21:242-243.
Ref ID: 34912
- 43 Boorman GA, Mantovani A. Inflammation and cancer. *Lancet* 2001; 357:539-545.
Ref ID: 34911
- 44 Booth M, Beral V, Smith P. Risk factors for ovarian cancer: a case-control study. *Br J Cancer* 1989; 60:592-598.
Ref ID: 34913
- 45 Boring CC, Squires TS, Tong T. Cancer statistics: 1991. *CA Cancer J Clin* 1991; 41:19-36.
Ref ID: 5502
- 46 Bosetti C, Rosato V, Gallus S, Cuzick J, La Vecchia C. Aspirin and cancer risk: a quantitative review to 2011. *Ann Oncol* 2012; 23:1403-1415.
Ref ID: 35038
- 47 Botesteanu DA, Lipkowitz S, Lee JM, Levy D. Mathematical models of breast and ovarian cancers. *Wiley Interdiscip Rev Syst Biol Med* 2016; 8:337-362.
Ref ID: 35580
- 48 Braem MG, Onland-Moret NC, Schouten LJ, Tjonneland A, Hansen L, Dahm CC et al. Coffee and tea consumption and the risk of ovarian cancer: a prospective cohort study and updated meta-analysis. *Am J Clin Nutr* 2012; 95:1172-1181.
Ref ID: 36421
- 49 Brigham and Women's Hospital. Ovarian Cancer
(at:<http://healthlibrary.brighamandwomens.org/Library/DiseasesConditions/Adult/Gynecological/85,P00575>). Boston: Brigham and Women's Hospital; 2014.
Ref ID: 35309
- 50 Brigham and Women's Hospital. Ovarian Cancer
(<http://healthlibrary.brighamandwomens.org/search/34,17170-1>). Boston: Brigham and Women's Hospital; 2019.
Ref ID: 36009
- 51 Brinton LA, Lamb EJ, Moghissi KS, Scoccia B, Althuis MD, Mabie JE et al. Ovarian cancer risk associated with varying causes of infertility. *Fertil Steril* 2004; 82:405-414.
Ref ID: 37280
- 52 Brinton LA, Westhoff CL, Scoccia B, Lamb EJ, Althuis MD, Mabie JE et al. Causes of infertility as predictors of subsequent cancer risk. *Epidemiology* 2005; 16:500-507.
Ref ID: 37219
- 53 Browning L, Patel MR, Horvath EB, Tawara K, Jorcyk CL. IL-6 and ovarian cancer: inflammatory cytokines in promotion of metastasis. *Cancer Manag Res* 2018; 10:6685-6693.
Ref ID: 37315
- 54 Brunham RC, Gottlieb SL, Paavonen J. Pelvic inflammatory disease. *NEJM* 2015; 372:2039-2048.
Ref ID: 37215
- 55 Bulun SE, Wan Y, Matei D. Epithelial mutations in endometriosis: Link to ovarian cancer. *Endocrinology* 2019; 160:626-638.
Ref ID: 37423
- 56 Burghaus S, Fasching PA, Haberle L, Rubner M, Buchner K, Blum S et al. Genetic risk factors for ovarian cancer and their role for endometriosis risk. *Gynecol Oncol* 2017; 145:142-147.
Ref ID: 36159

- 57 Buz'Zard AR, Lau BH. Pycnogenol reduces talc-induced neoplastic transformation in human ovarian cell cultures. *Phytother Res* 2007; 21:579-586.
Ref ID: 34914
- 58 Calaf GM, Urzua U, Termini L, Aguayo F. Oxidative stress in female cancers. *Oncotarget* 2018; 9:23824-23842.
Ref ID: 37239
- 59 Camargo MC, Stayner LT, Straif K, Reina M, Al-Alem U, Demers PA et al. Occupational exposure to asbestos and ovarian cancer: a meta-analysis. *EHP* 2018; 119:1211-1217.
Ref ID: 37151
- 60 Campion A, Smith KJ, Fedulov AV, Gregory D, Fan Y, Godleski JJ. Identification of Foreign Particles in Human Tissues using Raman Microscopy. *Anal Chem* 2018; 90:8362-8369.
Ref ID: 36817
- 61 Cannioto R, LaMonte MJ, Risch HA, Hong CC, Sucheston-Campbell LE, Eng KH et al. Chronic recreational physical inactivity and epithelial ovarian cancer risk: evidence from the Ovarian Cancer Association Consortium. *Can Epidemiol Biomarkers Prev* 2016; 25:1114-1124.
Ref ID: 35512
- 62 Cannioto RA, LaMonte MJ, Kelemen LE, Risch HA, Eng KH, Minlikeeva AN et al. Recreational physical inactivity and mortality in women with invasive epithelial ovarian cancer: evidence from the Ovarian Cancer Association Consortium. *Br J Cancer* 2016; 115:95-101.
Ref ID: 35583
- 63 Cannioto RA, Trabert B, Poole EM, Schildkraut JM. Ovarian cancer epidemiology in the era of collaborative team science. *Cancer Causes Control* 2017; 28:487-495.
Ref ID: 36288
- 64 Capriotti K, Capriotti JA. Dimethyl sulfoxide: history, chemistry, and clinical utility in dermatology. *J Clin Aesthet Dermatol* 2012; 5:24-26.
Ref ID: 37408
- 65 Cardenas C, Alvero AB, Yun B, Mor G. Redefining the origin and evolution of ovarian cancer: A hormonal connection. *Endocr Relat Cancer* 2016; 23:R411-R422.
Ref ID: 35628
- 66 Carr CJ. Talc: Consumer Uses and Health Perspectives. Proceedings of a workshop. Bethesda, Maryland, January 31-February 1, 1994. *Regul Toxicol Pharmacol* 1995; 21:211-215.
Ref ID: 35041
- 67 CDC. Ovarian Cancer (at: <http://www.cdc.gov/cancer/ovarian/>) (accessed 02/16). Atlanta: Centers for Disease Control and Prevention; 2016.
Ref ID: 35306
- 68 CDC. Ovarian Cancer (at: https://www.cdc.gov/cancer/ovarian/basic_info/risk_factors.htm). Atlanta: Centers for Disease Control and Prevention; 2018.
Ref ID: 37299
- 69 Chan DW, Liu VW, Tsao GS, Yao KM, Furukawa T, Chan KK et al. Loss of MKP3 mediated by oxidative stress enhances tumorigenicity and chemoresistance of ovarian cancer cells. *Carcinogenesis* 2008; 29:1742-1750.
Ref ID: 37266
- 70 Chang CJ, Tu YK, Chen PC, Yang HY. Occupational exposure to talc increases the risk of lung cancer: A meta-analysis of occupational cohort studies. *Can Respir J* 2017; 2017 (1270608).
Ref ID: 37186
- 71 Chang CJ, Tu YK, Chen PC, Yang HY. Talc exposure and risk of stomach cancer: Systematic review and meta-analysis of occupational cohort studies. *J Formos Med Assoc* 2018; still in print.
Ref ID: 37092
- 72 Chang S, Risch HA. Perineal talc exposure and risk of ovarian carcinoma. *Cancer* 1997; 79:2396-2401.
Ref ID: 34915
- 73 Charbonneau B, Goode EL, Kalli KR, Knutson KL, Derycke MS. The immune system in the pathogenesis of ovarian cancer. *Crit Rev Immunol* 2013; 33:137-164.
Ref ID: 37204
- 74 Chen F, Gaitskell K, Garcia MJ, Albukhari A, Tsaltas J, Ahmed AA. Serous tubal intraepithelial carcinomas associated with high-grade serous ovarian carcinomas: a systematic review. *BJOG* 2017; 124:872-878.
Ref ID: 36063
- 75 Chen QY, DesMarais T, Costa M. Metals and mechanisms of carcinogenesis. *Annu Rev Pharmacol Toxicol* 2019; 59:537-554.
Ref ID: 37429

- 76 Chen Y, Wu PC, Lang JH, Ge WJ, Hartge P, Brinton LA. Risk factors for epithelial ovarian cancer in Beijing, China. *Int J Epidemiol* 1992; 21:23-29.
Ref ID: 34949
- 77 Chen YA, Chen Z, Tsai Y-Y, Qu X, Iversen E, Barnholtz-Sloan J et al. Pathway and gene set analysis for epithelial ovarian cancer (EOC) genome wide association study (GWAS). [Abstract 4729] In Proceedings of the 102nd Annual Meeting of the American Association for Cancer Research, April 2-6, 2011. *Cancer Res* 2011; 71 (Suppl 8).
Ref ID: 35288
- 78 Chow E, Mahalingaiah S. Cosmetics use and age at menopause: is there a connection? *Fertil Steril* 2016; 106:978-990.
Ref ID: 35680
- 79 Chuffa LGA, Reiter RJ, Lupi Junior LA. Melatonin as a promising agent to treat ovarian cancer: molecular mechanisms. *Carcinogenesis* 2017; 38:945-952.
Ref ID: 36328
- 80 Cibula D, Widschwendter M, Majek O, Dusek L. Tubal ligation and the risk of ovarian cancer: review and meta-analysis. *Hum Reprod Update* 2011; 17:55-67.
Ref ID: 35521
- 81 Cirillo PM, Wang ET, Cedars MI, Chen LM, Cohn BA. Irregular menses predicts ovarian cancer: Prospective evidence from the Child Health and Development Studies. *Int J Cancer* 2016; 139:1009-1017.
Ref ID: 35402
- 82 Clendenen TV, Lundin E, Zeleniuch-Jacquotte A, Koenig KL, Berrino F, Lukanova A et al. Circulating inflammation markers and risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers Prev* 2011; 20:799-810.
Ref ID: 37258
- 83 Clyde MA, Palmieri Weber R, Iversen ES, Poole EM, Doherty JA, Goodman MT et al. Risk prediction for epithelial ovarian cancer in 11 United States-based case-control studies: Incorporation of epidemiologic risk factors and 17 confirmed genetic loci. *Am J Epidemiol* 2016; 184:555-569.
Ref ID: 35776
- 84 Cobb LP, Gaillard S, Wang Y, Shih I, Secord AA. Adenocarcinoma of Mullerian origin: review of pathogenesis, molecular biology, and emerging treatment paradigms. *Gynecol Oncol Res Pract* 2015; 2:1.
Ref ID: 36071
- 85 Coggiola M, Bosio D, Pira E, Piolatto PG, La Vecchia C, Negri E et al. An update of mortality study of talc miners and millers in Italy. *Am J Ind Med* 2003; 44:63-69.
Ref ID: 37139
- 86 Colditz GA, Philpott SE, Hankinson SE. The impact of the nurses' health study on population health: prevention, translation, and control. *Am J Public Health* 2016; 26:e1-e6.
Ref ID: 35625
- 87 Cook LS, Kamb ML, Weiss NS. Perineal powder exposure and the risk of ovarian cancer. *Am J Epidemiol* 1997; 145:459-465.
Ref ID: 34953
- 88 Craig ER, Londono AI, Norian LA, Arend RC. Metabolic risk factors and mechanisms of disease in epithelial ovarian cancer: A review. *Gynecol Oncol* 2016; 143:674-683.
Ref ID: 35881
- 89 Cralley LJ, Key MM, Groth DH, Lainhart WS, Ligo RM. Fibrous and mineral content of cosmetic talcum products. *Am Ind Hyg Assoc J* 1968; 29:350-354.
Ref ID: 35300
- 90 Cramer DW, Welch WR, Scully RE, Wojciechowski CA. Ovarian cancer and talc. A case-control study. *Cancer* 1982; 50:372-376.
Ref ID: 29886
- 91 Cramer DW, Xu H. Epidemiologic evidence for uterine growth factors in the pathogenesis of ovarian cancer. *Ann Epidemiol* 1995; 5:310-314.
Ref ID: 34951
- 92 Cramer DW, Liberman RF, Titus-Ernstoff L, Welch WR, Greenberg ER, Baron JA et al. Genital talc exposure and risk of ovarian cancer. *Int J Cancer* 1999; 81:351-356.
Ref ID: 34917
- 93 Cramer DW. Perineal talc exposure and subsequent epithelial ovarian cancer: a case-control study. *Obstet Gynecol* 1999; 94:160-161.
Ref ID: 34916
- 94 Cramer DW, Titus-Ernstoff L, McKolanis JR, Welch WR, Vitonis AF, Berkowitz RS et al. Conditions associated with antibodies against the tumor-associated antigen MUC1 and their relationship to risk for

- ovarian cancer. *Cancer Epidemiol Biomarkers Prev* 2005; 14:1125-1131.
Ref ID: 34918
- 95 Cramer DW, Welch WR, Berkowitz RS, Godleski JJ. Presence of talc in pelvic lymph nodes of a woman with ovarian cancer and long-term genital exposure to cosmetic talc. *Obstet Gynecol* 2007; 110:498-501.
Ref ID: 34922
- 96 Cramer DW, Finn OJ. Epidemiologic perspective on immune-surveillance in cancer. *Curr Opin Immunol* 2011; 23:265-271.
Ref ID: 35273
- 97 Cramer DW, Titus-Ernstoff L, Vitonis AF. Genital talc use and ovarian cancer: Influence of histologic type and menopausal status on strength and dose response of the association. [abstract LB-446] In *Proceedings of the 102nd Annual Meeting of the American Association for Cancer Research*, April 2-6, 2011. *Cancer Res* 2011; 71 (Suppl 8).
Ref ID: 35287
- 98 Cramer DW. The epidemiology of endometrial and ovarian cancer. *Hematol Oncol Clin North Am* 2012; 26:1-12.
Ref ID: 34934
- 99 Cramer DW, Vitonis AF, Terry KL, Welch WR, Titus LJ. The association between talc use and ovarian cancer: a retrospective case-control study in two US states. *Epidemiology* 2016; 26:334-346.
Ref ID: 35296
- 100 Cramer DW, Elias KM. A prognostically relevant miRNA signature for epithelial ovarian cancer. *Lancet Oncol* 2016; 17:1032-1033.
Ref ID: 35631
- 101 Cramer DW, Elias KM. Perspectives on ovarian cancer from SEER: today and tomorrow. *JNCI* 2019; 111:5-6.
Ref ID: 37428
- 102 Crawford L, Reeves KW, Luisi N, Balasubramanian R, Sturgeon SR. Perineal powder use and risk of endometrial cancer in postmenopausal women. *Cancer Causes Control* 2012; 23:1673-1680.
Ref ID: 35019
- 103 Danish Environmental Protection Agency. Evaluation of Health Hazards by Exposure to Talcum, Cosmetic Grade (non-fibrous) and Proposal of a Health-based Quality Criterion for Ambient Air (ISBN: 978-87-93529-23-6). Denmark: Danish Environmental Protection Agency; 2016.
Ref ID: 37359
- 104 Davies HE, Lee YC, Davies RJ. Pleurodesis for malignant pleural effusion: talc, toxicity and where next? *Thorax* 2008; 63:572-574.
Ref ID: 27765
- 105 Dean M, Davis DA, Burdette JE. Activin A stimulates migration of the fallopian tube epithelium, an origin of high-grade serous ovarian cancer, through non-canonical signaling. *Cancer Lett* 2017; 391:114-124.
Ref ID: 36155
- 106 Deng F, Xu X, Lv M, Ren B, Wang Y, Guo W et al. Age is associated with prognosis in serous ovarian carcinoma. *J Ovarian Res* 2017; 10:36.
Ref ID: 36327
- 107 Deutsche Forschungsgemeinschaft. Talc (without asbestos fibres) (respirable fraction). In: Deutsche Forschungsgemeinschaft, editor. *The MAK-Collection Part I: MAK Value Documentation*, Vol. 22. Vol. 22 ed. Weinheim: Wiley-VCH Verlag; 2006. 225-279.
Ref ID: 37363
- 108 Didziapetriene J, Bublevic J, Smalyte G, Kazbariene B, Stukas R. Significance of blood serum catalase activity and malondialdehyde level for survival prognosis of ovarian cancer patients. *Medicina (Kaunas)* 2014; 50:204-208.
Ref ID: 37265
- 109 Dinkelspiel HE, Matrai C, Pauk S, Pierre-Louis A, Chiu YL, Gupta D et al. Does the Presence of Endometriosis Affect Prognosis of Ovarian Cancer? *Cancer Invest* 2016; 34:148-154.
Ref ID: 35366
- 110 Dixon SC, Nagle CM, Thrift AP, Pharoah PD, Pearce CL, Zheng W et al. Adult body mass index and risk of ovarian cancer by subtype: a Mendelian randomization study. *Int J Epidemiol* 2016; 45:884-895.
Ref ID: 35632
- 111 Dixon SC, Nagle CM, Wentzensen N, Trabert B, Beeghly-Fadiel A, Schildkraut JM et al. Use of common analgesic medications and ovarian cancer survival: results from a pooled analysis in the Ovarian Cancer Association Consortium. *Br J Cancer* 2017; 116:1223-1228.
Ref ID: 36099
- 112 Donat-Vargas C, Akesson A, Berglund M, Glynn A, Wolk A, Kippler M. Dietary exposure to polychlorinated biphenyls and risk of breast, endometrial and ovarian cancer in a prospective cohort. *Br J*

- Cancer 2016; 115:1113-1121.
Ref ID: 35772
- 113 Dovizio M, Bruno A, Tacconelli S, Patrignani P. Mode of Action of Aspirin as a Chemopreventive Agent. In: Chan AT, Detering E, editors. Prospects for Chemoprevention of Colorectal Neoplasia. Emerging Role of Anti-Inflammatory Drugs. New York: Springer; 2013. 39-65.
Ref ID: 37227
- 114 Drechsel DA, Barlow CA, Bare JL, Jacobs NF, Henshaw JL. Historical evolution of regulatory standards for occupational and consumer exposures to industrial talc. Regul Toxicol Pharmacol 2017; 92:251-267.
Ref ID: 36574
- 115 Earp MA, Kelmen LE, Magliocco AM, Swenerton KD, Chenevix-Trech G, et al. Genome-wide association study of subtype-specific epithelial ovarian cancer risk alleles using pooled DNA. Hum Genet 2014; 133:481-497.
Ref ID: 34935
- 116 Egilman D, Steffen J. Commentary on "Assessment of Health Risk from Historical Use of Cosmetic Talcum Powder". New Solut 2018; 28:400-409.
Ref ID: 37091
- 117 Eriksen KT, Halkjaer J, Sorensen M, Meliker JR, McElroy JA, Tjonneland A et al. Dietary cadmium intake and risk of breast, endometrial and ovarian cancer in Danish postmenopausal women: a prospective cohort study. PloS One 2014; 9:e100815.
Ref ID: 36245
- 118 Espey LL. Current status of the hypothesis that mammalian ovulation is comparable to an inflammatory reaction. Biol Reprod 1994; 50:233-238.
Ref ID: 37261
- 119 Esposito K, Chiodini P, Colao A, Lenzi A, Giugliano D. Metabolic syndrome and risk of cancer: a systematic review and meta-analysis. Diabetes Care 2012; 35:2402-2411.
Ref ID: 35274
- 120 etal, Wiegand KC, Shah SP, Al-Agha OM, Zhao Y, Tse K et al. ARID1A mutations in endometriosis-associated ovarian carcinomas. NEJM 2010; 363:1532-1543.
Ref ID: 35609
- 121 Faber MT, Kjaer SK, Dehlendorff C, Chang-Claude J, Andersen KK, Hogdall E et al. Cigarette smoking and risk of ovarian cancer: a pooled analysis of 21 case-control studies. Cancer Causes Control 2013; 24:989-1004.
Ref ID: 34936
- 122 Fairfield KM, Hunter DJ, Fuchs CS, Colditz GA, Hankinson SE. Aspirin, other NSAIDs, and ovarian cancer risk (United States). Cancer Causes Control 2002; 13:535-542.
Ref ID: 37270
- 123 Fedak KM, Bernal A, Capshaw ZA, Gross S. Applying the Bradford Hill criteria in the 21st century: how data integration has changed causal inference in molecular. Emerg Themes Epidemiol 2015; 12:14.
Ref ID: 37357
- 124 Ferrante D, Bertolotti M, Todesco A, Mirabelli D, Terracini B, Magnani C. Cancer mortality and incidence of mesothelioma in a cohort of wives of asbestos workers in Casale Monferrato, Italy. EHP 2007; 115:1401-1405.
Ref ID: 37187
- 125 Fiederling J, Shams AZ, Haug U. Validity of self-reported family history of cancer: A systematic literature review on selected cancers. Int J Cancer 2016; 138:1448-1460.
Ref ID: 35506
- 126 Finkelstein MM. Response to: 'The epidemiology of malignant mesothelioma in women: gender differences and modalities of asbestos exposure' by Marinaccio et al. Occup Environ Med 2018; 75:844.
Ref ID: 37115
- 127 Finley BL, Benson SM, Marsh GM. Cosmetic talc as a risk factor for pleural mesothelioma: a weight of evidence evaluation of the epidemiology. Inhal Toxicol 2017; 29:179-185.
Ref ID: 36336
- 128 Finley BL, Benson SM, Marsh GM. Response to letters regarding "Cosmetic talc as a risk factor for pleural mesothelioma: a weight of evidence evaluation of the epidemiology". Inhal Toxicol 2018; 21:1-4.
Ref ID: 36629
- 129 Fletcher NM, Belotte J, Saed MG, Memaj I, Diamond MP, Morris RT et al. Specific point mutations in key redox enzymes are associated with chemoresistance in epithelial ovarian cancer. Free Radic Biol Med 2017; 102:122-132.
Ref ID: 37264
- 130 Flume MM, Boyerz I, Bergfelds WF, Belsito VF, Hills RA, Klaassen CD et al. Safety assessment of talc as used in cosmetics in Cosmetics. Int J Toxicol 2015; 34:66S-129S.
Ref ID: 35981

- 131 Food and Drug Administration. Talc
(<http://www.fda.gov/Cosmetics/ProductsIngredients/Ingredients/ucm293184.htm>). Silver Spring: Food
and Drug Administration; 2014.
Ref ID: 35017
- 132 Fortner RT, Schock H, Le Cornet C, Husing A, Vitonis AF, Johnson TS et al. Ovarian cancer early
detection by circulating CA125 in the context of Anti-CA125 Autoantibody levels: Results from the EPIC
cohort. *Int J Cancer* 2018; 142:1355-1360.
Ref ID: 36563
- 133 Fortner RT, Poole EM, Wentzensen NA, Trabert B, White E, Arslan AA et al. Ovarian cancer risk factors
by tumor aggressiveness: an analysis from the ovarian cancer cohort consortium. *Int J Cancer* 2018; still
in print.
Ref ID: 37312
- 134 Frank TS, Critchfield GC. Hereditary risk of women's cancers. *Best Pract Res Clin Obstet Gynaecol* 2002;
16:703-713.
Ref ID: 25595
- 135 Franzese E, Centonze S, Diana A, Carlino F, Guerrera LP, Di Napoli M et al. PARP inhibitors in ovarian
cancer. *Cancer Treat Rev* 2018; 73:1-9.
Ref ID: 37316
- 136 Frey MK, Pothuri B. Homologous recombination deficiency (HRD) testing in ovarian cancer clinical
practice: a review of the literature. *Gynecol Oncol Res Pract* 2017; 4:4.
Ref ID: 36378
- 137 Gaffney SH, Grespin M, Garnick L, Drechsel DA, Hazan R, Paustenbach DJ et al. Anthophyllite asbestos:
state of the science review. *J Appl Toxicol* 2017; 37:38-49.
Ref ID: 35617
- 138 Gaitskell K, Coffey K, Green J, Pirie K, Reeves GK, Ahmed AA et al. Tubal ligation and incidence of 26
site-specific cancers in the Million Women Study. *Br J Cancer* 2016; 114:1033-1037.
Ref ID: 35401
- 139 Gaitskell K, Green J, Pirie K, Reeves G, et al. Tubal ligation and ovarian cancer risk in a large cohort:
Substantial variation by histological type. *Int J Cancer* 2016; 138:1076-1084.
Ref ID: 35369
- 140 Gaitskell K, Green J, Pirie K, Barnes I, Hermon C, Reeves GK et al. Histological subtypes of ovarian
cancer associated with parity and breastfeeding in the prospective Million Women Study. *Int J Cancer*
2018; 142:281-289.
Ref ID: 36440
- 141 Galic V, Coleman RL, Herzog TJ. Unmet needs in ovarian cancer: dividing histologic subtypes to exploit
novel targets and pathways. *Curr Cancer Drug Targets* 2013; 13:698-707.
Ref ID: 35516
- 142 Garabrant DH, Pastula ST. A comparison of asbestos fiber potency and elongate mineral particle (EMP)
potency for mesothelioma in humans. *Toxicol Appl Pharmacol* 2018; 361:127-136.
Ref ID: 37093
- 143 Garcia-Perez J, Lope V, Lopez-Abente G, Gonzalez-Sanchez M, Fernandez-Navarro P. Ovarian cancer
mortality and industrial pollution. *Environ Pollut* 2015; 205:103-110.
Ref ID: 36243
- 144 Gates MA, Tworoger SS, Terry KL, Titus-Ernstoff L, Rosner B, De Vivo I et al. Talc use, variants of the
GSTM1, GSTT1, and NAT2 genes, and risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers
Prev* 2008; 17:2436-2444.
Ref ID: 34937
- 145 Gates MA, Rosner BA, Hecht JL, Tworoger SS. Risk factors for epithelial ovarian cancer by histologic
subtype. *Am J Epidemiol* 2010; 171:45-53.
Ref ID: 34960
- 146 Gaytan M, Morales C, Bellido C, Sanchez-Criado JE, Gaytan F. Non-steroidal anti-inflammatory drugs
(NSAIDs) and ovulation: lessons from morphology. *Histol Histopathol* 2006; 21:541-556.
Ref ID: 37285
- 147 George SH, Garcia R, Slomovitz BM. Ovarian cancer: The fallopian tube as the site of origin and
opportunities for prevention. *Front Oncol* 2016; 6 (Article 108).
Ref ID: 35515
- 148 Gertig DM, Hunter DJ, Cramer DW, Colditz GA, Speizer FE, Willett WC et al. Prospective study of talc use
and ovarian cancer. *JNCI* 2000; 92:249-252.
Ref ID: 34919
- 149 Giannakeas V, Sopik V, Shestopaloff K, Iqbal J, Rosen B, Akbari M et al. A model for estimating ovarian
cancer risk: Application for preventive oophorectomy. *Gynecol Oncol* 2015; 139:242-247.
Ref ID: 35286

- 150 Gilbert CR, Furman BR, Feller-Kopman DJ, Haouzi P. Description of particle size, distribution, and behavior of talc preparations commercially available within the United States. *J Bronchology Interv Pulmonol* 2018; 25:25-30.
Ref ID: 37448
- 151 Glass TA, Goodman SN, Hernan MA, Samet JM. Causal inference in public health. *Annu Rev Public Health* 2013; 34:61-75.
Ref ID: 34920
- 152 Godard B, Foulkes WD, Provencher D, Brunet J-S, Tonin PN, Mes-Masson A-M et al. Risk factors for familial and sporadic ovarian cancer among French Canadians: a case-control study. *Am J Obstet Gynecol* 1998; 179:403-410.
Ref ID: 16236
- 153 Gonzalez NL, O'Brien KM, D'Aloisio AA, Sandler DP, Weinberg CR. Douching, talc use, and risk of ovarian cancer. *Epidemiology* 2016; 27:797-802.
Ref ID: 35573
- 154 Gordon RE, Fitzgerald S, Millette J. Asbestos in commercial cosmetic talcum powder as a cause of mesothelioma in women. *Int J Occup Environ Health* 2014; 20:318-332.
Ref ID: 35347
- 155 Gordon RE, Fitzgerald S, Millette J. Corrigenda: Asbestos in commercial cosmetic talcum powder as a cause of mesothelioma in women. *Int J Occup Environ Health* 2015; 21:347-348.
Ref ID: 35349
- 156 Gordon RE. Response to RE: Asbestos in commercial cosmetic talcum powder as a cause of mesothelioma in women (Letter to the Editor). *Int J Occup Environ Health* 2015; 21:342-346.
Ref ID: 35351
- 157 Graham J, Graham R. Ovarian cancer and asbestos. *Environ Res* 1967; 1:115-128.
Ref ID: 35298
- 158 Grant D, Moorman PG, Akushevich L, Palmieri RT, Bentley rC, Schildkraut JM. Primary peritoneal and ovarian cancers: an epidemiological comparative analysis. *Cancer Causes Control* 2010; 21:991-998.
Ref ID: 37144
- 159 Green A, Purdie D, Bain C, Siskind V, Russell P, Quinn M et al. Tubal sterilisation, hysterectomy and decreased risk of ovarian cancer. Survey of Women's Health Study Group. *Int J Cancer* 1997; 71:948-951.
Ref ID: 34954
- 160 Greene AD, Lang SA, Kendzierski JA, Sroga-Rios JM, Herzog TJ, Burns K. Endometriosis: Where are We and Where are We Going? *Reproduction* 2016; 152:R63-R78.
Ref ID: 35511
- 161 Gross AJ, Berg PH. A meta-analytical approach examining the potential relationship between talc exposure and ovarian cancer. *J Expo Anal Environ Epidemiol* 1995; 5:181-195.
Ref ID: 34958
- 162 Gunderson CC, Ding K, Dvorak J, Moore KN, McMeekin DS, Benbrook DM. The pro-inflammatory effect of obesity on high grade serous ovarian cancer. *Gynecol Oncol* 2016; 143:40-45.
Ref ID: 35630
- 163 Gunter MJ, Murphy N, Cross AJ, Dossus L, Darton L, Fagherazzi G et al. Coffee Drinking and Mortality in 10 European Countries: A Multinational Cohort Study. *Ann Intern Med* 2017; 167:236-247.
Ref ID: 36369
- 164 Gupta M, Babic A, Beck AH, Terry K. TNF- α expression, risk factors, and inflammatory exposures in ovarian cancer: evidence for an inflammatory pathway of ovarian carcinogenesis? *Hum Pathol* 2016; 54:82-91.
Ref ID: 35689
- 165 Hamilton TC, Fox H, Buckley CH, Henderson WJ, Griffiths K. Effects of talc on the rat ovary. *Br J Exp Pathol* 1984; 65:101-106.
Ref ID: 36419
- 166 Hankinson SE, Hunter DJ, Colditz GA, Willett WC, Stampfer MJ, Rosner B et al. Tubal ligation, hysterectomy, and risk of ovarian cancer. A prospective study. *J Am Med Assoc* 1993; 270:2813-2818.
Ref ID: 35525
- 167 Hankinson SE, Danforth KN. Ovarian Cancer. In: Schottenfeld D, Fraumeni JF, Jr., editors. *Cancer Epidemiology and Prevention*. 3rd ed. New York: Oxford University Press; 2006. 1013-1026.
Ref ID: 37169
- 168 Hanley GE, McAlpine JN, Pearce CL, Miller D. The performance and safety of bilateral salpingectomy for ovarian cancer prevention in the United States. *Am J Obstet Gynecol* 2017; 216:270 e1-270 e9.
Ref ID: 35972

- 169 Hannibal CG, Rossing MA, Wicklund KG, Cushing-Haugen KL. Analgesic drug use and risk of epithelial ovarian cancer. *Am J Epidemiol* 2008; 167:1430-1437.
Ref ID: 37223
- 170 Hannibal CG, Dehlendorff C, Kjaer SK. Use of paracetamol, low-dose aspirin, or non-aspirin non-steroidal anti-inflammatory drugs and risk of ovarian borderline tumors in Denmark. *Gynecol Oncol* 2018; 151:513-518.
Ref ID: 37318
- 171 Hanson B, Johnstone E, Dorais J, Silver B, Peterson CM, Hotaling J. Female infertility, infertility-associated diagnoses, and comorbidities: a review. *J Assist Reprod Genet* 2016; still in print.
Ref ID: 35971
- 172 Harlow BL, Weiss NS. A case-control study of borderline ovarian tumors: the influence of perineal exposure to talc. *Am J Epidemiol* 1989; 130:390-394.
Ref ID: 34948
- 173 Harlow BL, Cramer DW, Bell DA, Welch WR. Perineal exposure to talc and ovarian cancer risk. *Obstet Gynecol* 1992; 80:19-26.
Ref ID: 34921
- 174 Harlow BL, Hartge PA. A review of perineal talc exposure and risk of ovarian cancer. *Regul Toxicol Pharmacol* 1995; 21:254-260.
Ref ID: 35020
- 175 Harris HR, Titus LJ, Cramer DW, Terry KL. Long and irregular menstrual cycles, polycystic ovary syndrome, and ovarian cancer risk in a population-based case-control study. *Int J Cancer* 2017; 140:285-291.
Ref ID: 35770
- 176 Harris HR, Babic A, Webb PM, Nagle CM, Jordan SJ, Risch HA et al. Polycystic ovary syndrome, oligomenorrhea, and risk of ovarian cancer histotypes: Evidence from the Ovarian Cancer Association Consortium. *Cancer Epidemiol Biomarkers Prev* 2018; 27:174-182.
Ref ID: 36564
- 177 Harris RE, Beebe-Donk J, Doss H, Burr Doss D. Aspirin, ibuprofen, and other non-steroidal anti-inflammatory drugs in cancer prevention: a critical review of non-selective COX-2 blockade (review). *Oncol Rep* 2005; 13:559-583.
Ref ID: 35012
- 178 Hartge P, Hoover R, Leshner LP, McGowan L. Talc and ovarian cancer. *J Am Med Assoc* 1983; 250:1844.
Ref ID: 34947
- 179 Hartge P, Stewart P. Occupation and ovarian cancer: a case-control study in the Washington, DC, metropolitan area, 1978-1981. *JOM* 1994; 36:924-927.
Ref ID: 34998
- 180 Hashmi AA, Hussain ZF, Bhagwani AR, Edhi MM, Faridi N, Hussain SD et al. Clinicopathologic features of ovarian neoplasms with emphasis on borderline ovarian tumors: an institutional perspective. *BMC Res Notes* 2016; 9:205.
Ref ID: 35405
- 181 Hefler-Frischmuth K, Hefler LA, Heinze G, Paseka V, Grimm C, Tempfer CB. Serum C-reactive protein in the differential diagnosis of ovarian masses. *Eur J Obstet Gynecol Reprod Biol* 2009; 147:65-68.
Ref ID: 37352
- 182 Heidemann LN, Hartwell D, Heidemann CH, Jochumsen KM. The relation between endometriosis and ovarian cancer - a review. *Acta Obstet Gynecol Scand* 2014; 93:20-31.
Ref ID: 37282
- 183 Helder-Woolderink JM, Blok EA, Vasen HF, Hollema H, Mourits MJ, De Bock GH. Ovarian cancer in Lynch syndrome: a systematic review. *Eur J Cancer* 2016; 55:65-73.
Ref ID: 35368
- 184 Heller DS, Westhoff C, Gordon RE, Katz N. The relationship between perineal cosmetic talc usage and ovarian talc particle burden. *Am J Obstet Gynecol* 1996; 174:1507-1510.
Ref ID: 34944
- 185 Heller DS, Gordon RE, Westhoff C, Gerber S. Asbestos exposure and ovarian fiber burden. *Am J Ind Med* 1996; 29:435-439.
Ref ID: 35297
- 186 Heller DS, Gordon RE, Clement PB, Turnnir R, Katz N. Presence of asbestos in peritoneal malignant mesotheliomas in women. *Int J Gynecol Cancer* 1999; 9:452-455.
Ref ID: 36693
- 187 Heller DS, Gordon RE, Katz N. Correlation of asbestos fiber burdens in fallopian tubes and ovarian tissue. *Am J Obstet Gynecol* 1999; 181:346-347.
Ref ID: 36199

- 188 Henderson WR, Joslin CA, Turnbull AC, Griffiths K. Talc and carcinoma of the ovary and cervix. *J Obstet Gynaecol Br Commonw* 1971; 78:266-272.
Ref ID: 35299
- 189 Henderson WR, Hamilton RC, Griffiths K. Talc in normal and malignant ovarian tissue. *Lancet* 1979; 1:499.
Ref ID: 34923
- 190 Hermann M, Enseleit F, Ruschitzka FT. Anti-inflammatory strategies in hypertension: focus on COX-1 and COX-2. *Curr Hypertens Rep* 2005; 7:52-60.
Ref ID: 37238
- 191 Houghton SC, Reeves KW, Hankinson SE, Crawford L, Lane D, Wactawski-Wende J et al. Perineal powder use and risk of ovarian cancer. *JNCI* 2014; 106.
Ref ID: 34925
- 192 Huang HS, Chu SC, Hsu CF, Chen PC, Ding DC, Chang MY et al. Mutagenic, surviving and tumorigenic effects of follicular fluid in the context of p53 loss: initiation of fimbria carcinogenesis. *Carcinogenesis* 2015; 36:1419-1428.
Ref ID: 37242
- 193 Huang T, Tworoger SS, Willett WC, Stampfer MJ, Rosner BA. Associations of early life and adulthood adiposity with risk of epithelial ovarian cancer. *Ann Oncol* 2018; still in print.
Ref ID: 37311
- 194 Huncharek M, Geschwind JF, Kupelnick B. Perineal application of cosmetic talc and risk of invasive epithelial ovarian cancer: a meta-analysis of 11,933 subjects from sixteen observational studies. *Anticancer Res* 2003; 23:1955-1960.
Ref ID: 34959
- 195 Huncharek M, Muscat J, Onitilo A, Kupelnick B. Use of cosmetic talc on contraceptive diaphragms and risk of ovarian cancer: a meta-analysis of nine observational studies. *Eur J Cancer Prev* 2007; 16:422-429.
Ref ID: 34997
- 196 Huncharek M, Muscat J. Perineal talc use and ovarian cancer risk: a case study of scientific standards in environmental epidemiology. *Eur J Cancer Prev* 2011; 20:501-507.
Ref ID: 34926
- 197 Huo X, Yao L, Han X, Li W, Liu J, Zhou L et al. Hysterectomy and risk of ovarian cancer: a systematic review and meta-analysis. *Arch Gynecol Obstet* 2019; still in print.
Ref ID: 37425
- 198 Ingerslev K, Hogdall E, Schnack TH, Skovrider-Ruminski W, Hogdall C, Blaakaer J. The potential role of infectious agents and pelvic inflammatory disease in ovarian carcinogenesis. *Infect Agent Cancer* 2017; 12:25.
Ref ID: 36284
- 199 International Agency for Research on Cancer. Talc. *IARC Monogr Eval Carcinog Risks Chem Human* 1987; 42:185-224.
Ref ID: 35310
- 200 International Agency for Research on Cancer. Carbon Black, Titanium Dioxide, and Talc. *IARC Monogr Eval Carcinog Risks Chem Human* 2010; 93:277-413.
Ref ID: 34933
- 201 Iversen L, Sivasubramaniam S, Lee AJ, Fielding S, Hannaford PC. Lifetime cancer risk and combined oral contraceptives: the Royal College of General Practitioners' Oral Contraception Study. *Am J Obstet Gynecol* 2017; 216:580.e1-580.e9.
Ref ID: 36064
- 202 Iwasaki Y, Takamori S, Mitsuoka M, Kashihara M, Nishi T, Murakami D et al. Experimental validation of talc pleurodesis for carcinomatous pleuritis in an animal model. *Gen Thorac Cardiovasc Surg* 2016; 64:409-413.
Ref ID: 35620
- 203 John EM, Whittemore AS, Harris R, Itnyre J. Characteristics relating to ovarian cancer risk: collaborative analysis of seven U.S. case-control studies. Epithelial ovarian cancer in black women. Collaborative Ovarian Cancer Group. *JNCI* 1993; 85:142-147.
Ref ID: 35275
- 204 Jordan SJ, Green AC, Whiteman DC, Webb PM. Risk factors for benign serous and mucinous epithelial ovarian tumors. *Obstet Gynecol* 2007; 109:647-654.
Ref ID: 34957
- 205 Journy NMY, Bernier MO, Doody MM, Alexander BH, Linet MS, Kitahara CM. Hyperthyroidism, Hypothyroidism, and Cause-Specific Mortality in a Large Cohort of Women. *Thyroid* 2017; 27:1001-1010.
Ref ID: 36370

- 206 Julin B, Wolk A, Akesson A. Dietary cadmium exposure and risk of epithelial ovarian cancer in a prospective cohort of Swedish women. *Br J Cancer* 2011; 105:441-444.
Ref ID: 36248
- 207 Jurinski JB, Rimstidt JD. Biodurability of talc. *Am Mineral* 2001; 86:392-399.
Ref ID: 36008
- 208 Kajiyama H, Suzuki S, Yoshihara M, Tamauchi S, Yoshikawa N, Niimi K et al. Endometriosis and cancer. *Free Radic Biol Med* 2019; 133:186-192.
Ref ID: 37314
- 209 Kaldawy A, Segev Y, Lavie O, Auslender R, Sopik V, Narod SA. Low-grade serous ovarian cancer: A review. *Gynecol Oncol* 2016; 143:433-438.
Ref ID: 35974
- 210 Kar SP, Berchuck A, Gayther SA, Goode EL, Moysich KB, Pearce CL et al. Common genetic variation and susceptibility to ovarian cancer: current insights and future directions. *Cancer Epidemiol Biomarkers Prev* 2018; 27:395-404.
Ref ID: 36326
- 211 Karageorgi S, Gates MA, Hankinson SE, De Vivo I. Perineal use of talcum powder and endometrial cancer risk. *Cancer Epidemiol Biomarkers Prev* 2010; 19:1269-1275.
Ref ID: 35083
- 212 Karihtala P, Soini Y, Vaskivuo L, Bloigu R, Puistola U. DNA adduct 8-hydroxydeoxyguanosine, a novel putative marker of prognostic significance in ovarian carcinoma. *Int J Gynecol Cancer* 2009; 19:1047-1051.
Ref ID: 37272
- 213 Karnezis AN, Cho KR, Gilks CB, Pearce CL, Huntsman DG. The disparate origins of ovarian cancers: pathogenesis and prevention strategies. *Nat Rev Cancer* 2017; 17:65-74.
Ref ID: 35968
- 214 Katz ME, Schwartz PE, Kapp DS, Luikart S. Epithelial carcinoma of the ovary: current strategies. *Ann Intern Med* 1981; 95:98-111.
Ref ID: 37171
- 215 Kelemen LE, Abbott S, Qin B, Peres LC, Moorman PG, Wallace K et al. Cigarette smoking and the association with serous ovarian cancer in African American women: African American Cancer Epidemiology Study (AACES). *Cancer Causes Control* 2017; 28:699-708.
Ref ID: 36287
- 216 Kim HS, Kim TH, Chung HH, Song YS. Risk and prognosis of ovarian cancer in women with endometriosis: a meta-analysis. *Br J Cancer* 2014; 110:1878-1890.
Ref ID: 37277
- 217 Kleppe M, Kraima AC, Kruitwagen RF, Van Gorp T, Smit NN, van Munsteren JC et al. Understanding lymphatic drainage pathways of the ovaries to predict sites for sentinel nodes in ovarian cancer. *Int J Gynecol Cancer* 2015; 25:1405-1414.
Ref ID: 35393
- 218 Klingler GA. Digital Computer Analysis of Particle Size Distribution in Dusts and Powders. (Project 7116) (AD-752209). Wright-Patterson Air Force Base, Ohio: Aerospace Research Laboratories, 1972.
Ref ID: 37449
- 219 Klinkebiel D, Zhang W, Akers SN, Odunsi K, Karpf AR. DNA methylome analyses implicate fallopian tube epithelia as the origin for high-grade serous ovarian cancer. *Mol Cancer Res* 2016; 14:787-794.
Ref ID: 35579
- 220 Kobayashi H, Sumimoto K, Kitanaka T, Yamada Y, Sado T, Sakata M et al. Ovarian endometrioma--risks factors of ovarian cancer development. *Eur J Obstet Gynecol Reprod Biol* 2008; 138:187-193.
Ref ID: 37288
- 221 Kobayashi H. Potential scenarios leading to ovarian cancer arising from endometriosis. *Redox Rep* 2016; 21:119-126.
Ref ID: 36242
- 222 Koushik A, Grundy A, Abrahamowicz M, Arseneau J, Gilbert L, Gotlieb WH et al. Hormonal and reproductive factors and the risk of ovarian cancer. *Cancer Causes Control* 2017; 28:393-403.
Ref ID: 36036
- 223 Kraima AC, Derks M, Smit NN, van Munsteren JC, Van der Velden J, Kenter GG et al. Lymphatic drainage pathways from the cervix uteri: implications for radical hysterectomy? *Gynecol Oncol* 2014; 132:107-113.
Ref ID: 35394
- 224 Kroeger PT, Drapkin R. Pathogenesis and heterogeneity of ovarian cancer. *Curr Opin Obstet Gynecol* 2017; 29:26-34.
Ref ID: 36065

- 225 Kroener L, Dumesic D, Al-Safi Z. Use of fertility medications and cancer risk: a review and update. *Curr Opin Obstet Gynecol* 2017; 29:195-201.
Ref ID: 36283
- 226 Kurman RJ, Shih I. The origin and pathogenesis of epithelial ovarian cancer: a proposed unifying theory. *Am J Surg Pathol* 2010; 34:433-443.
Ref ID: 37276
- 227 Kurman RJ, Shih I. The dualistic model of ovarian carcinogenesis: revisited, revised, and expanded. *Am J Pathol* 2016; 186:733-747.
Ref ID: 35598
- 228 Kurta M, Moysich KB, Weissfeld JL, Youk AO, Bunker CH, Edwards RP et al. Use of fertility drugs and risk of ovarian cancer: results from a U.S.-based case-control study. *Cancer Epidemiol Biomarkers Prev* 2012; 21:1282-1292.
Ref ID: 35277
- 229 Kvaskoff M, Mu F, Terry KL, Harris HR, Poole EM, Farland L et al. Endometriosis: a high-risk population for major chronic diseases? *Hum Reprod Update* 2015; 21:500-516.
Ref ID: 37279
- 230 La Vecchia C. Ovarian cancer: epidemiology and risk factors. *Eur J Cancer* 2017; 26:55-62.
Ref ID: 36033
- 231 Labidi-Galy SI, Papp E, Hallberg D, Niknafs N, Adleff V, Noe M et al. High grade serous ovarian carcinomas originate in the fallopian tube. *Nat Commun* 2017; 8:1093.
Ref ID: 36497
- 232 Landen CN, Jr., Birrer MJ, Sood AK. Early events in the pathogenesis of epithelial ovarian cancer. *J Clin Oncol* 2008; 26:995-1005.
Ref ID: 35590
- 233 Langer AM, Nolan RP. Asbestos in play sand. *NEJM* 1987; 316:882.
Ref ID: 37176
- 234 Langseth H, Kjaerheim K. Ovarian cancer and occupational exposure among pulp and paper employees in Norway. *Scand J Work Environ Health* 2004; 30:356-361.
Ref ID: 25533
- 235 Langseth H, Johansen BV, Nesland JM, Kjaerheim K. Asbestos fibers in ovarian tissue from Norwegian pulp and paper workers. *Int J Gynecol Cancer* 2007; 17:44-49.
Ref ID: 36692
- 236 Langseth H, Hankinson SE, Siemiatycki J, Weiderpass E. Perineal use of talc and risk of ovarian cancer. *J Epidemiol Community Health* 2008; 62:358-360.
Ref ID: 34927
- 237 Lau A, Kollara A, St John E, Tone AA, Virtanen C, Greenblatt EM et al. Altered expression of inflammation-associated genes in oviductal cells following follicular fluid exposure: Implications for ovarian carcinogenesis. *Exp Biol Med (Maywood)* 2014; 239:24-32.
Ref ID: 37243
- 238 Ledermann JA, Sessa C, Colombo N. appendix 7: Ovarian cancer: eUpdate published online September 2016 (<http://www.esmo.org/Guidelines/Gynaecological-Malignancies>). *Ann Oncol* 2016; 27 (suppl 5):v145.
Ref ID: 35771
- 239 Lee AW, Ness RB, Roman LD, Terry KL, Schildkraut JM, Chang-Claude J et al. Association Between Menopausal Estrogen-Only Therapy and Ovarian Carcinoma Risk. *Obstet Gynecol* 2016; 127:828-836.
Ref ID: 35514
- 240 Lee AW, Templeman C, Stram DA, Beesley J, Tyrer J, Berchuck A et al. Evidence of a genetic link between endometriosis and ovarian cancer. *Fertil Steril* 2016; 105:35-43.
Ref ID: 35517
- 241 Lee R, Van Orden D. Re: Asbestos in commercial cosmetic talcum powder as a cause of mesothelioma in women (Letter to the Editor). *Int J Occup Environ Health* 2015; 21:337-341.
Ref ID: 35352
- 242 Li J, Liu R, Tang S, Feng F, Liu C, Wang L et al. Impact of endometriosis on risk of ovarian, endometrial and cervical cancers: a meta-analysis. *Arch Gynecol Obstet* 2019; 299:35-46.
Ref ID: 37249
- 243 Li S, Miner K, Fannin R, Carl Barrett J, Davis BJ. Cyclooxygenase-1 and 2 in normal and malignant human ovarian epithelium. *Gynecol Oncol* 2004; 92:622-627.
Ref ID: 37274
- 244 Li Y, Zhang HL, Kang S, Zhou RM, Wang N. The effect of polymorphisms in PD-1 gene on the risk of epithelial ovarian cancer and patients' outcomes. *Gynecol Oncol* 2017; 144:140-145.
Ref ID: 35970

- 245 Liberti MV, Locasale JW. The Warburg Effect: How does it benefit cancer cells? *Trends Biochem Sci* 2016; 41:211-218.
Ref ID: 37230
- 246 Licaj I, Lukic M, Jareid M, Lund E, Braaten T, Gram IT. Epithelial ovarian cancer subtypes attributable to smoking in the Norwegian Women and Cancer Study, 2012. *Cancer Med* 2016; 5:720-727.
Ref ID: 35408
- 247 Licaj I, Jacobsen BK, Selmer RM, Maskarinec G, Weiderpass E, Gram IT. Smoking and risk of ovarian cancer by histological subtypes: an analysis among 300 000 Norwegian women. *Br J Cancer* 2017; 116:270-276.
Ref ID: 35984
- 248 Liede A, Mansfield CA, Metcalfe KA, Price MA, et al. Preferences for breast cancer risk reduction among BRCA1/BRCA2 mutation carriers: a discrete-choice experiment. *Breast Cancer Res Treat* 2017; 165:433-444.
Ref ID: 36324
- 249 Lim MC, Randall LM. Role and clinical application of next-generation sequencing (NGS) for ovarian cancer. *J Gynecol Oncol* 2017; 28:e51.
Ref ID: 36362
- 250 Lim MC, Pfaendler K. Type and risk of cancer related to endometriosis: ovarian cancer and beyond. *BJOG* 2018; 125:73.
Ref ID: 36426
- 251 Lin HW, Tu YY, Lin SY, Su WJ, Lin WL, Lin WZ et al. Risk of ovarian cancer in women with pelvic inflammatory disease: a population-based study. *Lancet Oncol* 2011; 12:900-904.
Ref ID: 37190
- 252 Lin SF, Gerry E, Shih IM. Tubal origin of ovarian cancer - the double-edged sword of haemoglobin. *J Pathol* 2017; 242:3-6.
Ref ID: 36038
- 253 Liu H, Zeng Z, Wang S, Li T, Mastriani E, Li QH et al. Main components of pomegranate, ellagic acid and luteolin, inhibit metastasis of ovarian cancer by down-regulating MMP2 and MMP9. *Cancer Biol Ther* 2017; 18:990-999.
Ref ID: 36559
- 254 Long Roche KC, Abu-Rustum NR, Nourmoussavi M, Zivanovic O. Risk-reducing salpingectomy: Let us be opportunistic. *Cancer* 2017; 123:1714-1720.
Ref ID: 36285
- 255 Lueth NA, Anderson KE, Harnack LJ, Fulkerson JA, Robien K. Coffee and caffeine intake and the risk of ovarian cancer: the Iowa Women's Health Study. *Cancer Causes Control* 2008; 19:1365-1372.
Ref ID: 36420
- 256 Lukic M, Licaj I, Lund E, Skeie G, Weiderpass E, Braaten T. Coffee consumption and the risk of cancer in the Norwegian Women and Cancer (NOWAC) Study. *Eur J Epidemiol* 2016; 31:905-916.
Ref ID: 35364
- 257 Lundberg FE, Iliadou AN, Rodriguez-Wallberg K, Gemzell-Danielsson K, Johansson ALV. The risk of breast and gynecological cancer in women with a diagnosis of infertility: a nationwide population-based study. *Eur J Epidemiol* 2019; still in print.
Ref ID: 37424
- 258 Lundin E, Dossus L, Clenden T, Krogh V, Grankvist K, Wulff M et al. C-reactive protein and ovarian cancer: a prospective study nested in three cohorts (Sweden, USA, Italy). *Cancer Causes Control* 2009; 20:1151-1159.
Ref ID: 37212
- 259 Lynch JR, Ayer HE. Measurement of dust exposures in the asbestos textile industry. *Am Ind Hyg Assoc J* 1966; 27:431-437.
Ref ID: 37193
- 260 Maccio A, Lai P, Santona MC, Pagliara L, Melis GB, Mantovani G. High serum levels of soluble IL-2 receptor, cytokines, and C reactive protein correlate with impairment of T cell response in patients with advanced epithelial ovarian cancer. *Gynecol Oncol* 1998; 69:248-252.
Ref ID: 37350
- 261 Mallen AR, Townsend MK, Tworoger SS. Risk factors for ovarian carcinoma. *Hematol Oncol Clin North Am* 2018; 32:891-902.
Ref ID: 37320
- 262 Malmberg K, Klynning C, Floter-Radestad A, Carlson JW. Serous tubal intraepithelial carcinoma, chronic fallopian tube injury, and serous carcinoma development. *Virchows Arch* 2016; 468:707-713.
Ref ID: 35365

- 263 Mandel JH, Odo NU. Mesothelioma and other lung disease in taconite miners; the uncertain role of non-asbestiform EMP. *Toxicol Appl Pharmacol* 2018; 361:107-112.
Ref ID: 36733
- 264 Marchiori E, Zanetti G, Mano CM, Hochegger B, Irion KL. Talc-induced pulmonary granulomatosis or septic pulmonary embolism? A diagnostic challenge. *Ann Thorac Surg* 2010; 90:362-363.
Ref ID: 30250
- 265 Matulonis UA. Highlights in Ovarian Cancer From the 2017 American Society of Clinical Oncology Annual Meeting: Commentary. *Clin Adv Hematol Oncol* 2017; 15 (suppl 7):13-17.
Ref ID: 36415
- 266 Matulonis UA. Ovarian cancer. *Hematol Oncol Clin North Am* 2018; 32:xiii-xxiv.
Ref ID: 37319
- 267 May J, Skorupskaite K, Congiu M, Ghaoui N, Walker GA, Fegan S et al. Borderline ovarian tumors: Fifteen years' experience at a Scottish Tertiary Cancer Center. *Int J Gynecol Cancer* 2018; 28:1683-1691.
Ref ID: 37256
- 268 Mazurek JM, Wood JM, Schleiff PL, Weissman DN. Surveillance for Silicosis Deaths Among Persons Aged 15-44 Years - United States, 1999-2015. *MMWR Morb Mortal Wkly Rep* 2017; 66:747-752.
Ref ID: 36359
- 269 McAlpine JN, Lisonkova S, Joseph KS, McComb PF. Pelvic inflammation and the pathogenesis of ovarian cancer: a cohort study. *Int J Gynecol Cancer* 2014; 24:1406-1413.
Ref ID: 37205
- 270 McAlpine JN. Ovarian cancer and prevention. *Clin Obstet Gynecol* - still in print 2017; still in print.
Ref ID: 36427
- 271 McMahon CJ, Rofsky NM, Pedrosa I. Lymphatic metastases from pelvic tumors: anatomic classification, characterization, and staging. *Radiology* 2010; 254:31-46.
Ref ID: 35395
- 272 McSorley MA, Alberg AJ, Allen DS, Allen NE, Brinton LA, Dorgan JF et al. C-reactive protein concentrations and subsequent ovarian cancer risk. *Obstet Gynecol* 2007; 109:933-941.
Ref ID: 37260
- 273 Meinhold-Heerlein I, Fotopoulou C, Harter P, Kurzeder C, Mustea A, Wimberger P et al. The new WHO classification of ovarian, fallopian tube, and primary peritoneal cancer and its clinical implications. *Arch Gynecol Obstet* 2016; 293:695-700.
Ref ID: 35406
- 274 Meinhold-Heerlein I, Fotopoulou C, Harter P, Kurzeder C, Mustea A, Wimberger P et al. Erratum to: The new WHO classification of ovarian, fallopian tube, and primary peritoneal cancer and its clinical implications. *Arch Gynecol Obstet* 2016; 293:1367.
Ref ID: 35403
- 275 Menon U, McGuire AJ, Raikou M, Ryan A, Davies SK, Burnell M et al. The cost-effectiveness of screening for ovarian cancer: results from the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS). *Br J Cancer* 2017; 117:619-627.
Ref ID: 36408
- 276 Merritt MA, Green AC, Nagle CM, Webb PM. Talcum powder, chronic pelvic inflammation and NSAIDs in relation to risk of epithelial ovarian cancer. *Int J Cancer* 2008; 122:170-176.
Ref ID: 35004
- 277 Meserve EEK, Mirkovic J, Conner JR, Yang E, Muto MG, Horowitz N et al. Frequency of "incidental" serous tubal intraepithelial carcinoma (STIC) in women without a history of or genetic risk factor for high-grade serous carcinoma: A six-year study. *Gynecol Oncol* 2017; 146:69-73.
Ref ID: 36371
- 278 Mills PK, Riordan DG, Cress RD, Young HA. Perineal talc exposure and epithelial ovarian cancer risk in the Central Valley of California. *Int J Cancer* 2004; 112:458-464.
Ref ID: 34956
- 279 Minlikeeva AN, Freudenheim JL, Cannioto RA, Eng KH, Szender JB, Mayor P et al. History of thyroid disease and survival of ovarian cancer patients: results from the Ovarian Cancer Association Consortium, a brief report. *Br J Cancer* 2017; 117:1063-1069.
Ref ID: 36428
- 280 Modugno F, Goughnour SL, Wallack D, Edwards RP, Odunsi K, Kelley JL et al. Breastfeeding factors and risk of epithelial ovarian cancer. *Gynecol Oncol* 2019; still in print.
Ref ID: 37422
- 281 Mogensen JB, Kjaer SK, Møller M, Jensen A. Endometriosis and risks for ovarian, endometrial and breast cancers: A nationwide cohort study. *Gynecol Oncol* 2016; 143:87-92.
Ref ID: 35629

- 282 Moorman PG, Palmieri RT, Akushevich L, Berchuck A, Schildkraut JM. Ovarian cancer risk factors in African-American and white women. *Am J Epidemiol* 2009; 170:598-606.
Ref ID: 34999
- 283 Moorman PG, Alberg AJ, Bandera EV, Barnholtz-Sloan J, Bondy M, Cote ML et al. Reproductive factors and ovarian cancer risk in African-American women. *Ann Epidemiol* 2016; 26:654-662.
Ref ID: 35775
- 284 Moradi MM, Carson LF, Weinberg B, Haney AF, Twiggs LB, Ramakrishnan S. Serum and ascitic fluid levels of interleukin-1, interleukin-6, and tumor necrosis factor-alpha in patients with ovarian epithelial cancer. *Cancer* 1993; 72:2433-2440.
Ref ID: 37351
- 285 Morch LS, Dehlendorff C, Baandrup L, Friis S, Kjaer SK. Use of antidepressants and risk of epithelial ovarian cancer. *Int J Cancer* 2017; still in print.
Ref ID: 36412
- 286 Mossman BT. Assessment of the pathogenic potential of asbestiform vs. nonasbestiform particulates (cleavage fragments) in in vitro (cell or organ culture) models and bioassays. *Regul Toxicol Pharmacol* 2008; 52 (suppl 1):S200-S203.
Ref ID: 36694
- 287 Munkarah A, Ali-Fehmi R. COX-2: a protein with an active role in gynecological cancers. *Curr Opin Obstet Gynecol* 2005; 17:49-53.
Ref ID: 37271
- 288 Munksgaard PS, Blaakaer J. The association between endometriosis and gynecological cancers and breast cancer: a review of epidemiological data. *Gynecol Oncol* 2011; 123:157-163.
Ref ID: 37286
- 289 Munksgaard PS, Blaakaer J. The association between endometriosis and ovarian cancer: a review of histological, genetic and molecular alterations. *Gynecol Oncol* 2012; 124:164-169.
Ref ID: 37287
- 290 Murdoch WJ, Martinchick JF. Oxidative damage to DNA of ovarian surface epithelial cells affected by ovulation: carcinogenic implication and chemoprevention. *Exp Biol Med (Maywood)* 2004; 229:546-552.
Ref ID: 37236
- 291 Murphy MA, Trabert B, Yang HP, Park Y, Brinton LA, Hartge P et al. Non-steroidal anti-inflammatory drug use and ovarian cancer risk: findings from the NIH-AARP Diet and Health Study and systematic review. *Cancer Causes Control* 2012; 23:1839-1852.
Ref ID: 35037
- 292 Muscat J, Huncharek M, Cramer DW. Talc and anti-MUC1 antibodies. *Cancer Epidemiol Biomarkers Prev* 2005; 14:2679.
Ref ID: 34938
- 293 Muscat JE, Huncharek MS. Causation and disease: biomedical science in toxic tort litigation. *JOM* 1989; 31:997-1002.
Ref ID: 35272
- 294 Muscat JE, Huncharek MS. Perineal talc use and ovarian cancer: a critical review. *Eur J Cancer Prev* 2008; 17:139-146.
Ref ID: 34932
- 295 Nadler DL, Zurbenko IG. Estimating cancer latency times using a Weibull Model. *Adv Epidemiol* 2014; Article ID: 746769:1-8.
Ref ID: 37152
- 296 Nagle CM, Dixon SC, Jensen A, Kjaer SK, Modugno F, deFazio A et al. Obesity and survival among women with ovarian cancer: results from the Ovarian Cancer Association Consortium. *Br J Cancer* 2015; 113:817-826.
Ref ID: 35261
- 297 Nakonechny QB, Gilks CB. Ovarian cancer in hereditary cancer susceptibility syndromes. *Surg Pathol Clin* 2016; 9:189-199.
Ref ID: 35578
- 298 Narod SA, Sun P, Ghadirian P, Lynch H, Isaacs C, Garber J et al. Tubal ligation and risk of ovarian cancer in carriers of BRCA1 or BRCA2 mutations: a case-control study. *Lancet* 2001; 357:1467-1470.
Ref ID: 35522
- 299 Narod SA. Talc and ovarian cancer. *Gynecol Oncol* 2016; 141:410-412.
Ref ID: 35400
- 300 Nasioudis D, Sisti G, Kanninen TT, Holcomb K, Di Tommaso M, Fambrini M et al. Epidemiology and outcomes of squamous ovarian carcinoma: a population-based study. *Gynecol Oncol* 2016; 141:128-133.
Ref ID: 35410

- 301 Nasreen N, Mohammed KA, Dowling PA, Ward MJ, Galfy G, Antony VB. Talc induces apoptosis in human malignant mesothelioma cells in vitro. *Am J Respir Crit Care Med* 2000; 161:595-600.
Ref ID: 35107
- 302 Nasreen N, Mohammed KA, Brown S, Su Y, Sriram PS, Moudgil B et al. Talc mediates angiostasis in malignant pleural effusions via endostatin induction. *Eur Respir J* 2007; 29:761-769.
Ref ID: 35108
- 303 National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention—for health professionals (PDQ®) (at:https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#section/_9). Washington, DC: National Cancer Institute; 2017.
Ref ID: 36295
- 304 National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention (PDQ®): Patient Version. Bethesda: National Cancer Institute; 2017.
Ref ID: 36411
- 305 National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention (PDQ) - Patient Version (at: https://www.cancer.gov/types/ovarian/patient/ovarian-prevention-pdq#section/_11). Washington, DC: National Cancer Institute; 2018.
Ref ID: 36073
- 306 National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention - Patient Version (PDQ®) (at:https://www.cancer.gov/types/ovarian/patient/ovarian-prevention-pdq#section/_11). Washington, DC: National Cancer Institute; 2018.
Ref ID: 37297
- 307 National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention-for Health Professionals (PDQ®) (at:https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#cit/section_3.46). Washington, DC: National Cancer Institute; 2018.
Ref ID: 37298
- 308 National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention—for Health Professionals (PDQ®) (at:https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#section/_9). Washington, DC: National Cancer Institute; 2019.
Ref ID: 35303
- 309 National Research Council. Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2 (<https://www.nap.edu/download/11340>). Washington, DC: National Academies Press; 2006.
Ref ID: 37173
- 310 Ness R. Does talc exposure cause ovarian cancer? (IGCS-0015). *International Journal of Gynecological Cancer* 2015; 25 (Suppl 1):51.
Ref ID: 35308
- 311 Ness RB, Cottreau C. Possible role of ovarian epithelial inflammation in ovarian cancer. *JNCI* 1999; 91:1459-1467.
Ref ID: 34928
- 312 Ness RB, Grisso JA, Cottreau C, Klapper J, Vergona R, Wheeler JE et al. Factors related to inflammation of the ovarian epithelium and risk of ovarian cancer. *Epidemiology* 2000; 11:111-117.
Ref ID: 34929
- 313 Ness RB, Cramer DW, Goodman MT, Kjaer SK, Mallin K, Mosgaard BJ et al. Infertility, fertility drugs, and ovarian cancer: a pooled analysis of case-control studies. *Am J Epidemiol* 2002; 155:217-224.
Ref ID: 37278
- 314 Ness RB, Shen C, Bass D, Jackson C, Moysich K, Edwards R et al. Chlamydia trachomatis serology in women with and without ovarian cancer. *Infect Dis Obstet Gynecol* 2008; 2008(ID: 219672).
Ref ID: 37220
- 315 Ness RD. Endometriosis and ovarian cancer: thoughts on shared pathophysiology. *Am J Obstet Gynecol* 2003; 189:280-294.
Ref ID: 35518
- 316 Ni X, Ma J, Zhao Y, Wang Y, Wang S. Meta-analysis on the association between non-steroidal anti-inflammatory drug use and ovarian cancer. *Br J Clin Pharmacol* 2013; 75:26-35.
Ref ID: 35039
- 317 Nunez C, Bauman A, Egger S, Sitas F, Nair-Shalliker V. Obesity, physical activity and cancer risks: Results from the Cancer, Lifestyle and Evaluation of Risk Study (CLEAR). *Cancer Epidemiol* 2017; 47:56-63.
Ref ID: 36034
- 318 Oddone E, Ferrante D, Tunesi S, Magnani C. Mortality in asbestos cement workers in Pavia, Italy: A cohort study. *Am J Ind Med* 2017; 60:852-866.
Ref ID: 37166

- 319 Ohshimo S, Guzman J, Costabel U, Bonella F. Differential diagnosis of granulomatous lung disease: clues and pitfalls: Number 4 in the Series "Pathology for the clinician" Edited by Peter Dorfmueller and Alberto Cavazza. *Eur Respir Rev* 2017; 26:170012.
Ref ID: 36399
- 320 Olsen CM, Nagle CM, Whiteman DC, Ness R, Pearce CL, Pike MC et al. Obesity and risk of ovarian cancer subtypes: evidence from the Ovarian Cancer Association Consortium. *Endocr Relat Cancer* 2013; 20:251-262.
Ref ID: 35278
- 321 Ong JS, Cuellar-Partida G, Lu Y, al. Association of vitamin D levels and risk of ovarian cancer: a Mendelian randomization study. *Int J Epidemiol* 2016; still in print.
Ref ID: 35774
- 322 Ong JS, Hwang LD, Cuellar-Partida G, Martin NG, Chenevix-Trench G, Quinn MCJ et al. Assessment of moderate coffee consumption and risk of epithelial ovarian cancer: a Mendelian randomization study. *Int J Epidemiol* 2018; 47:450-459.
Ref ID: 36561
- 323 Ose J, Schock H, Tjonneland A, Hansen L, Overvad K, Dossus L et al. Inflammatory markers and risk of epithelial ovarian cancer by tumor subtypes: The EPIC Cohort. *Cancer Epidemiol Biomarkers Prev* 2015; 24:951-961.
Ref ID: 37328
- 324 Ose J, Poole EM, Schock H, Lehtinen M, Arslan AA, Zeleniuch-Jacquotte A et al. Androgens are differentially associated with ovarian cancer subtypes in the ovarian cancer cohort consortium. *Cancer Res* 2017; 77:3951-3960.
Ref ID: 36367
- 325 Ovacome. Talcum powder and ovarian cancer: Fact Sheet 14 (at: <https://www.ovacome.org.uk/talcum-powder-and-ovarian-cancer>). London: Ovacome; 2018.
Ref ID: 37302
- 326 Palmirotta R, Silvestris E, D'Oronzo S, Cardascia A, Silvestris F. Ovarian cancer: Novel molecular aspects for clinical assessment. *Crit Rev Oncol Hematol* 2017; 117:12-29.
Ref ID: 36430
- 327 Paoletti L, Caiazza S, Donelli G, Pocchiari F. Evaluation by electron microscopy techniques of asbestos contamination in industrial, cosmetic, and pharmaceutical talcs. *Regul Toxicol Pharmacol* 1984; 4:222-235.
Ref ID: 29887
- 328 Parazzini F, La Vecchia C, Negri E, Moroni S, dal Pino D, Fedele L. Pelvic inflammatory disease and risk of ovarian cancer. *Cancer Epidemiol Biomarkers Prev* 1996; 5:667-669.
Ref ID: 37203
- 329 Park HK, Ruterbusch JJ, Cote ML. Recent trends in ovarian cancer incidence and relative survival in the U.S. by race/ethnicity and histologic subtypes. *Cancer Epidemiol Biomarkers Prev* 2017; 26:1511-1518.
Ref ID: 36365
- 330 Park HK, Schildkraut JM, Alberg AJ, Bandera EV, Barnholtz-Sloan JS, Bondy M et al. Benign gynecologic conditions are associated with ovarian cancer risk in African-American women: a case-control study. *Cancer Causes Control* 2018; 29:1081-1091.
Ref ID: 37217
- 331 Park S, Park J, Lee E, Eom H, Shin MY, Kim J et al. Ovarian cancer in a former asbestos textile factory worker: a case report. *Ann Occup Environ Med* 2018; 30.
Ref ID: 37250
- 332 Patrignani P, Patrono C. Aspirin and cancer. *J Am Coll Cardiol* 2016; 68:967-976.
Ref ID: 37225
- 333 PDQ Adult Treatment Editorial Board. Ovarian Epithelial, Fallopian Tube, and Primary Peritoneal Cancer Treatment (PDQ®): Patient Version. Authors (<http://www.ncbi.nlm.nih.gov/books/NBK65718/?report=printable>). Bethesda: National Cancer institute; 2017.
Ref ID: 35627
- 334 PDQ Adult Treatment Editorial Board. Ovarian Epithelial, Fallopian Tube, and Primary Peritoneal Cancer Treatment (PDQ): Health Professional Version. National Cancer Institution; 2017.
Ref ID: 36361
- 335 Pearce CL, Templeman C, Rossing MA, Lee A, Near AM, Webb PM et al. Association between endometriosis and risk of histological subtypes of ovarian cancer: a pooled analysis of case-control studies. *Lancet Oncol* 2012; 13(385):394.
Ref ID: 35282
- 336 Pearce CL, Rossing MA, Lee AW, Ness RB, Webb PM, et al. Combined and interactive effects of environmental and GWAS-identified risk factors in ovarian cancer. *Cancer Epidemiol Biomarkers Prev*

- 2013; 22:880-890.
Ref ID: 35264
- 337 Pearce CL, Stram DO, Ness RB, Stram DA, Roman LD, Templeman C et al. Population distribution of lifetime risk of ovarian cancer in the United States. *Can Epidemiol Biomarkers Prev* 2015; 24:671-767.
Ref ID: 35256
- 338 Penninkilampi R, Eslick GD. Perineal talc use and ovarian cancer: A systematic review and meta-analysis. *Epidemiology* 2018; 29:41-49.
Ref ID: 36581
- 339 Peres LC, Camacho F, Abbott SE, Alberg AJ, Bandera EV, Barnholtz-Sloan J et al. Analgesic medication use and risk of epithelial ovarian cancer in African American women. *Br J Cancer* 2016; 114:819-825.
Ref ID: 35363
- 340 Peres LC, Moorman PG, Alberg AJ, Bandera EV, Barnholtz-Sloan J, Bondy M et al. Lifetime number of ovulatory cycles and epithelial ovarian cancer risk in African American women. *Cancer Causes Control* 2017; 28:405-414.
Ref ID: 36102
- 341 Peres LC, Alberg AJ, Bandera EV, Barnholtz-Sloan J, Bondy M, Cote ML et al. Premenopausal hysterectomy and risk of ovarian cancer in African-American women. *Am J Epidemiol* 2017; 186:46-53.
Ref ID: 36153
- 342 Peres LC, Bandera EV, Qin B, Guertin KA, Shivappa N, Hebert JR et al. Dietary inflammatory index and risk of epithelial ovarian cancer in African American women. *Int J Cancer* 2017; 140:535-543.
Ref ID: 35882
- 343 Perets R, Drapkin R. It's totally tubular....Riding the new wave of ovarian cancer research. *Cancer Res* 2016; 76:10-17.
Ref ID: 36072
- 344 Phillips A, Balega J, Nevin J, Singh K, Elattar A, Kehoe S et al. Reporting 'Denominator' data is essential for benchmarking and quality standards in ovarian cancer. *Gynecol Oncol* 2017; 146:94-100.
Ref ID: 36154
- 345 Pierce SR, Clark LH. Current First-line Therapy for ovarian cancer: A comprehensive review. *Obstet Gynecol Survey* 2018; 73:650-657.
Ref ID: 37257
- 346 Pike MC. Age-related factors in cancers of the breast, ovary, and endometrium. *J Chronic Dis* 1987; 40 (suppl 2):59S-69S.
Ref ID: 37162
- 347 Pinheiro SP, Gates MA, De Vivo I, Rosner BA, Tworoger SS, Titus-Ernstoff L et al. Interaction between use of non-steroidal anti-inflammatory drugs and selected genetic polymorphisms in ovarian cancer risk. *Int J Mol Epidemiol Genet* 2010; 1:320-331.
Ref ID: 37208
- 348 Pira E, Pelucchi C, Buffoni L, Palmas A, Turbiglio M, Negri E et al. Cancer mortality in a cohort of asbestos textile workers. *Br J Cancer* 2005; 92:580-586.
Ref ID: 37167
- 349 Pira E, Romano C, Violante FS, Farioli A, Spatari G, La Vecchia C et al. Updated mortality study of a cohort of asbestos textile workers. *Cancer Med* 2016; 5:2623-2628.
Ref ID: 35626
- 350 Pira E, Coggiola M, Ciocan C, Romano C, La Vecchia C, Pelucchi C et al. Mortality of talc miners and millers from Val Chisone, Northern Italy: An Updated Cohort Study. *J Occup Environ Med* 2017; 59:659-664.
Ref ID: 36341
- 351 Poole EM, Lee IM, Ridker PM, Buring JE, Hankinson SE, Tworoger SS. A prospective study of circulating C-reactive protein, interleukin-6, and tumor necrosis factor a receptor 2 levels and risk of ovarian cancer. *Am J Epidemiol* 2013; 178:1256-1264.
Ref ID: 35587
- 352 Poole EM, Lin WT, Kvaskoff M, De Vivo I, Terry KL, Missmer SA. Endometriosis and risk of ovarian and endometrial cancers in a large prospective cohort of U.S. nurses. *Cancer Causes Control* 2017; 28:437-445.
Ref ID: 36101
- 353 Poorolajal J, Jenabi E, Masoumi SZ. Body mass index effects on risk of ovarian cancer: a meta-analysis. *Asian Pac J Cancer Prev* 2014; 15:7665-7671.
Ref ID: 35280
- 354 Praestegaard C, Kjaer SK, Nielsen TS, Jensen SM, Webb PM, Nagle CM et al. The association between socioeconomic status and tumour stage at diagnosis of ovarian cancer: A pooled analysis of 18 case-control studies. *Cancer Epidemiol* 2016; 41:71-79.
Ref ID: 35407

- 355 Purdie D, Green A, Bain C, Siskind V, Ward B, Hacker N et al. Reproductive and other factors and risk of epithelial ovarian cancer: an Australian case-control study. Survey of Women's Health Study Group. *Int J Cancer* 1995; 62:678-684.
Ref ID: 34952
- 356 Purdie DM, Brain CJ, Siskind V, Webb PM, Green AC. Ovulation and risk of epithelial ovarian cancer. *Int J Cancer* 2003; 104:228-232.
Ref ID: 37153
- 357 Pylvas M, Puistola U, Kauppila S, Soini Y, Karihtala P. Oxidative stress-induced antioxidant enzyme expression is an early phenomenon in ovarian carcinogenesis. *Eur J Cancer* 2010; 46:1661-1671.
Ref ID: 37269
- 358 Pylvas M, Puistola U, Laatio L, Kauppila S, Karihtala P. Elevated serum 8-OHdG is associated with poor prognosis in epithelial ovarian cancer. *Anticancer Res* 2011; 31:1411-1415.
Ref ID: 37234
- 359 Qin B, Moorman PG, Alberg AJ, Barnholtz-Sloan JS, Bondy M, Cote ML et al. Dairy, calcium, vitamin D and ovarian cancer risk in African-American women. *Br J Cancer* 2016; 115:1122-1130.
Ref ID: 35773
- 360 Qin B, Moorman PG, Kelemen LE, Alberg AJ, Barnholtz-Sloan JS, Bondy M et al. Dietary quality and ovarian cancer risk in African-American women. *Am J Epidemiol* 2017; 23:1-9.
Ref ID: 36282
- 361 Ramanakumar AV, Parent ME, Latreille B, Siemiatycki J. Risk of lung cancer following exposure to carbon black, titanium dioxide and talc: results from two case-control studies in Montreal. *Int J Cancer* 2008; 122:183-189.
Ref ID: 27143
- 362 Randall LM, Pothuri B. The genetic prediction of risk for gynecologic cancers. *Gynecol Oncol* 2016; 141:10-16.
Ref ID: 35409
- 363 Rasmussen CB, Faber MT, Jensen A, Hogdall E, Hogdall C, Blaakaer J et al. Pelvic inflammatory disease and risk of invasive ovarian cancer and ovarian borderline tumors. *Cancer Causes Control* 2013; 24:1459-1464.
Ref ID: 37202
- 364 Rasmussen CB, Jensen A, Albieri V, Andersen KK, Kjaer SK. Increased risk of borderline ovarian tumors in women with a history of pelvic inflammatory disease: A nationwide population-based cohort study. *Gynecol Oncol* 2016; 143:346-351.
Ref ID: 35686
- 365 Rasmussen CB, Kjaer SK, Albieri V, Bandera EV, Doherty JA, Hogdall E et al. Pelvic inflammatory disease and the risk of ovarian cancer and borderline ovarian tumors: A pooled analysis of 13 case-control studies. *Am J Epidemiol* 2017; 185:8-20.
Ref ID: 35989
- 366 Rasmussen CB, Jensen A, Albieri V, Andersen KK, Kjaer SK. Is pelvic inflammatory disease a risk factor for ovarian cancer? *Cancer Epidemiol Biomarkers Prev* 2017; 26:104-109.
Ref ID: 35769
- 367 Rasmussen EL, Hannibal CG, Dhlendorff C, Baandrup L, Junge J, Vang R et al. Parity, infertility, oral contraceptives, and hormone replacement therapy and the risk of ovarian serous borderline tumors: A nationwide case-control study. *Gynecol Oncol* 2017; 144:571-576.
Ref ID: 36037
- 368 Ray Chaudhuri A, Nussenzweig A. The multifaceted roles of PARP1 in DNA repair and chromatin remodelling. *Nat Rev Mol Cell Biol* 2017; 18:610-621.
Ref ID: 36498
- 369 Rayar AM, Lagarde N, Ferroud C, Zagury JF, Montes M, Sylla-Iyarreta Veitia M. Update on COX-2 selective inhibitors: Chemical classification, side effects and their use in cancers and neuronal diseases. *Curr Top Med Chem* 2017; 17:2935-2956.
Ref ID: 37229
- 370 Rehm S, Waalkes MP. Cadmium-induced ovarian toxicity in hamsters, mice, and rats. *Fundam Appl Toxicol* 1988; 10:635-647.
Ref ID: 36253
- 371 Reid A, de Klerk N, Musk AW. Does exposure to asbestos cause ovarian cancer? A systematic literature review and meta-analysis. *Can Epidemiol Biomarkers Prev* 2011; 20:1287-1295.
Ref ID: 36296
- 372 Reigstad MM, Storeng R, Myklebust TA, Oldereid NB, Omland AK, Røsbahm TE et al. Cancer Risk in Women Treated with Fertility Drugs According to Parity status - A Registry-based Cohort Study. *Cancer Epidemiol Biomarkers Prev* 2017; 26:953-962.
Ref ID: 36035

- 373 Rice MS, Murphy MA, Tworoger SS. Tubal ligation, hysterectomy and ovarian cancer: A meta-analysis. *J Ovarian Res* 2012; 5:13.
Ref ID: 35520
- 374 Risch HA, Howe GR. Pelvic inflammatory disease and the risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers Prev* 1995; 4:447-451.
Ref ID: 37200
- 375 Rodriguez-Panadero F, Montes-Worboys A. Mechanisms of pleurodesis. *Respiration* 2012; 83:91-98.
Ref ID: 35106
- 376 Rohl AN, Langer AM, Selikoff IJ, Tordini A, Klimentidis R, Bowes DR et al. Consumer talcums and powders: mineral and chemical characterization. *J Toxicol Environ Health* 1976; 2:255-284.
Ref ID: 37183
- 377 Roland IH, Yang WL, Yang DH, Daly MB, Ozols RF, Hamilton TC et al. Loss of surface and cyst epithelial basement membranes and preneoplastic morphologic changes in prophylactic oophorectomies. *Cancer* 2003; 98:2607-2623.
Ref ID: 37275
- 378 Romero R, Erez O, Huttemann M, Maymon E, Panaitescu B, Conde-Agudelo A et al. Metformin, the aspirin of the 21st century: its role in gestational diabetes, prevention of preeclampsia and cancer, and the promotion of longevity. *Am J Obstet Gynecol* 2017; 217:282-302.
Ref ID: 36325
- 379 Rosenberg K, Mechatie E. Low-dose aspirin use associated with lower ovarian cancer risk. *Am J Nurs* 2019; 119:50.
Ref ID: 37426
- 380 Rosenblatt KA, Szklo M, Rosenshein NB. Mineral fiber exposure and the development of ovarian cancer. *Gynecol Oncol* 1992; 45:20-25.
Ref ID: 35276
- 381 Rosenblatt KA, Mathews WA, Daling JR, Voigt LF, Malone K. Characteristics of women who use perineal powders. *Obstet Gynecol* 1998; 92:753-756.
Ref ID: 35283
- 382 Rosenblatt KA, Weiss NS, Cushing-Haugen KL, Wicklund KG, Rossing MA. Genital powder exposure and the risk of epithelial ovarian cancer. *Cancer Causes Control* 2011; 22:737-742.
Ref ID: 34941
- 383 Rosenman KD. Talc. In: Bingham E, Cohns B, editors. *Patty's Toxicology*. 6th (Volume 5) ed. New York: John Wiley & Sons, Inc.; 2012. 257-272.
Ref ID: 36417
- 384 Rossing MA, Cushing-Haugen KL, Wicklund KG, Doherty JA, Weiss NS. Risk of epithelial ovarian cancer in relation to benign ovarian conditions and ovarian surgery. *Cancer Causes Control* 2008; 19:1357-1364.
Ref ID: 35519
- 385 Rothman KJ. Induction and latent periods. *Am J Epidemiol* 1981; 114:253-259.
Ref ID: 37259
- 386 Rubino GF, Scansetti G, Piolatto G, Romano CA. Mortality study of talc miners and millers. *JOM* 1976; 18:186-193.
Ref ID: 37140
- 387 Sadeghi R. Feasibility of sentinel node mapping in ovarian Tumorst What Is the evidence? *Int J Gynecol Cancer* 2018; 28:421-422.
Ref ID: 36560
- 388 Saed GM, Ali-Fehmi R, Jiang ZL, Fletcher NM, Diamond MP, Abu-Soud HM et al. Myeloperoxidase serves as a redox switch that regulates apoptosis in epithelial ovarian cancer. *Gynecol Oncol* 2010; 116:276-281.
Ref ID: 37263
- 389 Saed GM, Diamond MP, Fletcher NW. Updates of the role of oxidative stress in the pathogenesis of ovarian cancer. *Gynecol Oncol* 2017; 145:595-602.
Ref ID: 36330
- 390 Saed GM, Fletcher NM, Diamond MP, Morris RT, Gomez-Lopez N, Memaj I. Novel expression of CD11b in epithelial ovarian cancer: Potential therapeutic target. *Gynecol Oncol* 2018; 148:567-575.
Ref ID: 37232
- 391 Saed GM, Morris RT, Fletcher NM. New Insights into the Pathogenesis of Ovarian Cancer: Oxidative Stress. In: Devaja O, Papadopoulos A, editors. *Ovarian Cancer - From Pathogenesis to Treatment*. 2018. 83-110.
Ref ID: 37262
- 392 Samimi G, Minasian LM. Opportunistic salpingectomy: What about the role of the ovary in ovarian cancer? *Cancer* 2017; 123:1699-1702.
Ref ID: 36286

- 393 Sanchez M, Torres JV, Tormos C, Iradi A, Muniz P, Espinosa O et al. Impairment of antioxidant enzymes, lipid peroxidation and 8-oxo-2'-deoxyguanosine in advanced epithelial ovarian carcinoma of a Spanish community. *Cancer Lett* 2006; 233:28-35.
Ref ID: 37273
- 394 Saraswat L, Ayansina D, Cooper KG, Bhattacharya S, Horne AW, Bhattacharya S. Impact of endometriosis on risk of further gynaecological surgery and cancer: a national cohort study. *BJOG* 2018; 125:64-72.
Ref ID: 36432
- 395 Schildkraut JM, Abbott SE, Alberg AJ, Bandera EV, Barnholtz-Sloan JS, Bondy ML et al. Association between body powder use and ovarian cancer: the African American Cancer Epidemiology Study (AACES). *Cancer Epidemiol Biomarkers Prev* 2016; 25:1411-1417.
Ref ID: 35510
- 396 Scientific Association of European Talc Producers. What is talc? (<https://www.eurotalc.eu/what-talc>). Brussels: EuroTalc; 2019.
Ref ID: 37360
- 397 Seewaldt VL. Aspirin and chemoprevention- Have we arrived? *JAMA Oncol* 2019; 4:1668-1669.
Ref ID: 37233
- 398 Seidman JD, Cho KR, Ronnett BM, Kurman RJ. Surface Epithelial Tumors of the Ovary. In: Kurman RJ, Hedrick Ellenson L, Ronnett BM, editors. *Blaustein's Pathology of the Female Genital Tract*. 6th ed. Springer Science Business Media LLC: 2011. 680-784.
Ref ID: 35608
- 399 Shah VA, Cassell M, Poulouse A, Sabates NR. Talc retinopathy. *Ophthalmology* 2008; 115:755.
Ref ID: 27422
- 400 Shan W, Liu J. Inflammation: a hidden path to breaking the spell of ovarian cancer. *Cell Cycle* 2009; 8:3107-3111.
Ref ID: 37231
- 401 Shen CC, Hu LY, Yang AC, Chiang YY, Hung JH, Tsai SJ. Risk of uterine, ovarian and breast cancer following pelvic inflammatory disease: a nationwide population-based retrospective cohort study. *BMC Cancer* 2016; 16:839.
Ref ID: 35973
- 402 Shen N, Weiderpass E, Antilla A, Goldberg MS, Vasama-Neuvonen KM, Boffetta P et al. Epidemiology of occupational and environmental risk factors related to ovarian cancer. *Scand J Work Environ Health* 1998; 24:175-182.
Ref ID: 36251
- 403 Shi LF, Wu Y, Li CY. Hormone therapy and risk of ovarian cancer in postmenopausal women: a systematic review and meta-analysis. *Menopause* 2016; 23:417-424.
Ref ID: 35411
- 404 Shih I, Kurman RJ. Ovarian tumorigenesis: a proposed model based on morphological and molecular genetic analysis. *Am J Pathol* 2004; 164:1511-1518.
Ref ID: 35599
- 405 Shimizu Y, Kato H, Schull WJ. Studies of the mortality of A-bomb survivors. 9. Mortality, 1950-1985: Part 2. Cancer mortality based on the recently revised doses (DS86). *Radiat Res* 1990; 121:120-141.
Ref ID: 37177
- 406 Shu XO, Brinton LA, Gao YT, Yuan JM. Population-based case-control study of ovarian cancer in Shanghai. *Cancer Res* 1989; 49:3670-3674.
Ref ID: 37201
- 407 Shukla A, Macpherson MB, Hillegass J, Ramos-Nino ME, Alexeeva V, Vacek PM et al. Alterations in gene expression in human mesothelial cells correlate with mineral pathogenicity. *Am J Respir Cell Mol Biol* 2009; 41:114-123.
Ref ID: 35637
- 408 Shushan A, Patiel O, Iscovich J, Elchalal U, Peretz T, Schenker JG. Human menopausal gonadotropin and the risk of epithelial ovarian cancer. *Fertil Steril* 1996; 65:13-18.
Ref ID: 35284
- 409 Sidaway P. Genetics: BRCA-mutant breast/ovarian cancer revealed. *Nat Rev Clin Oncol* 2017; 14:524.
Ref ID: 36383
- 410 Sieh W, Salvador S, McGuire V, Weber RP, Terry KL, Rossing MA et al. Tubal ligation and risk of ovarian cancer subtypes: a pooled analysis of case-control studies. *Int J Epidemiol* 2013; 42:579-589.
Ref ID: 35262
- 411 Simin J, Tamimi R, Lagergren J, Adami HO, Brusselaers N. Menopausal hormone therapy and cancer risk: An overestimated risk? *Eur J Cancer* 2017; 84:60-68.
Ref ID: 36413

- 412 Siteman Cancer Center. Your Disease Risk (at:<https://siteman.wustl.edu/prevention/ydr/>). St. Louis: Siteman Cancer Center; 2019.
Ref ID: 37301
- 413 Slack R, Young C, Rushton L. Occupational cancer in Britain. Female cancers: breast, cervix and ovary. *Br J Cancer* 2012; 107 (suppl 1):S27-S32.
Ref ID: 36247
- 414 Smith G, Roberts R, Hall C, Nuki G. Reversible ovulatory failure associated with the development of luteinized unruptured follicles in women with inflammatory arthritis taking non-steroidal anti-inflammatory drugs. *Br J Rheumatol* 1996; 35:458-462.
Ref ID: 37283
- 415 Smith RA, Andrews KS, Brooks D, Fedewa SA, Manassaram-Baptiste D, Saslow D et al. Cancer screening in the United States, 2017: A review of current American Cancer Society guidelines and current issues in cancer screening. *CA Cancer J Clin* 2017; 67:100-121.
Ref ID: 36103
- 416 Sorensen RD, Schnack TH, Karlsen MA, Hogdall CK. Serous ovarian, fallopian tube and primary peritoneal cancers: a common disease or separate entities - a systematic review. *Gynecol Oncol* 2015; 136:571-581.
Ref ID: 35293
- 417 Spriggs DR, Longo DL. Progress in BRCA-mutated ovarian cancer. *NEJM* 2018; 379:2567-2568.
Ref ID: 37310
- 418 Srivastava SK, Ahmad A, Miree O, Patel GK, Singh S, Rocconi RP et al. Racial health disparities in ovarian cancer: not just black and white. *J Ovarian Res* 2017; 10:58.
Ref ID: 36429
- 419 Steiling W, Almeida JF, Assaf Vandecasteele H, Gilpin S, Kawamoto T, O'Keeffe L et al. Principles for the safety evaluation of cosmetic powders. *Toxicol Lett* 2018; 297:8-18.
Ref ID: 37184
- 420 Stern RC, Dash R, Bentley rC, Snyder MJ, Haney AF, Robboy SJ. Malignancy in endometriosis: frequency and comparison of ovarian and extraovarian types. *Int J Gynecol Pathol* 2001; 20:133-139.
Ref ID: 37281
- 421 Stewart LM, Holman CD, Aboagye-Sarfo P, Finn JC, Preen DB, Hart R. In vitro fertilization, endometriosis, nulliparity and ovarian cancer risk. *Gynecol Oncol* 2013; 128:260-264.
Ref ID: 37206
- 422 Stewart LM, Spillsbury K, Jordan S, Stewart C, Holman CD, Powell A et al. Risk of high-grade serous ovarian cancer associated with pelvic inflammatory disease, parity and breast cancer. *Cancer Epidemiol* 2018; 55:110-116.
Ref ID: 37218
- 423 Stewart SL, Harewood R, Matz M, Rim SH, Sabatino SA, Ward KC et al. Disparities in ovarian cancer survival in the United States (2001-2009): Findings from the CONCORD-2 study. *Cancer* 2017; 123 (suppl 24):5138-5159.
Ref ID: 37172
- 424 Stone S, Khamashta MA, Nelson-Piercy C. Nonsteroidal anti-inflammatory drugs and reversible female infertility: is there a link? *Drug Safety* 2002; 25:545-551.
Ref ID: 37284
- 425 Straif K, Keil U, Taeger D, Holthenrich D, Sun Y, Bungers M et al. Exposure to nitrosamines, carbon black, asbestos, and talc and mortality from stomach, lung, and laryngeal cancer in a cohort of rubber workers. *Am J Epidemiol* 2000; 152:297-306.
Ref ID: 22085
- 426 Stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D et al. Meta-analysis of observational studies in epidemiology: A proposal for reporting. *J Am Med Assoc* 2000; 283:2008-2012.
Ref ID: 29571
- 427 Swisher EM, Garcia RL, Kilgore MR, Norquist BM. Culprit or Bystander? The role of the fallopian tube in "Ovarian" high-grade serous carcinoma. *Cancer Discov* 2016; 6:1309-1311.
Ref ID: 36007
- 428 Tabung FK, Huang T, Giovannucci EL, Smith-Warner SA, Tworoger SS, Poole EM. The inflammatory potential of diet and ovarian cancer risk: results from two prospective cohort studies. *Br J Cancer* 2017; still in print.
Ref ID: 36414
- 429 Taher MK, Farhat N, Karyakina NA, Shilnikova N, Ramoju S, Gravel CA et al. Systematic Review and Meta-Analysis of the Association Between Perineal Use of Talc and Risk of Ovarian Cancer. 2018.
Ref Type: Report
Ref ID: 37372

- 430 Taher MK, Farhat N, Karyakina NA, Shilnikova N, Ramoju S, Gravel CA et al. Systematic Review and Meta-Analysis of the Association between Perineal Use of Talc Powder and Risk of Ovarian Cancer. (Supplemental Material). 2018.
Ref Type: Report
Ref ID: 37355
- 431 Taher MY, Davies DM, Maher J. The role of the interleukin (IL)-6/IL-6 receptor axis in cancer. *Biochem Soc Trans* 2018; 46:1449-1462.
Ref ID: 37313
- 432 Taniguchi F. New knowledge and insights about the malignant transformation of endometriosis. *J Obstet Gynaecol Res* 2017; 43:1093-1100.
Ref ID: 36363
- 433 Tarp S, Bartels EM, Bliddal H, Furst DE, Boers M, Danneskiold-Samsøe B et al. Effect of nonsteroidal antiinflammatory drugs on the C-reactive protein level in rheumatoid arthritis: a meta-analysis of randomized controlled trials. *Arthritis Rheum* 2012; 64:3511-3521.
Ref ID: 37237
- 434 Ten Haaf K, Jeon J, Tammemagi MC. Risk prediction models for selection of lung cancer screening candidates: A retrospective validation study. *PLoS Med* 2017; 14:e1002277.
Ref ID: 36157
- 435 Terry KL, Karageorgi S, Shvetsov YB, Merritt MA, Lurie G, Thompson PJ et al. Genital powder use and risk of ovarian cancer: a pooled analysis of 8,525 cases and 9,859 controls. *Cancer Prev Res (Phila)* 2013; 6:811-821.
Ref ID: 34930
- 436 Terry PD, Qin B, Camacho F, Moorman PG, Alberg A, Barnholtz-Sloan JS et al. Supplemental selenium may decrease ovarian cancer risk in African-American women. *J Nutr* 147, 621-627. 2017.
Ref Type: Journal (Full)
Ref ID: 36160
- 437 Tew WP. Ovarian cancer in the older woman. *J Geriatr Oncol* 2016; 7:354-361.
Ref ID: 35688
- 438 Thompson DE, Mabuchi K, Ron E, Soda M, Tokunaga M, Ochkubo S et al. Cancer incidence in atomic bomb survivors. Part II: Solid tumors, 1958-1987. *Radiat Res* 1994; 137 (Suppl 2):S17-S67.
Ref ID: 37175
- 439 Thomsen LH, Henrichsen Schnack T, Buchardi K, Hummelshøj L, Missmer SA, Forman A et al. Risk factors of epithelial ovarian carcinomas among women with endometriosis: a systematic review. *Acta Obstet Gynecol Scand* 2017; 96:761-778.
Ref ID: 35684
- 440 Tokuoka S, Kawai K, Shimizu Y, Inai K, Ohe K, Fujikura T et al. Malignant and benign ovarian neoplasms among atomic bomb survivors, Hiroshima and Nagasaki, 1950-80. *JNCI* 1987; 79:47-57.
Ref ID: 37168
- 441 Toriola AT, Grankvist K, Agborsangaya CB, Lukanova A, Lehtinen M, Surcel HM. Changes in pre-diagnostic serum C-reactive protein concentrations and ovarian cancer risk: a longitudinal study. *Ann Oncol* 2011; 22:1916-1921.
Ref ID: 37211
- 442 Torpy JM, Burke AE, Golub RM. JAMA patient page. Ovarian cancer. *J Am Med Assoc* 2011; 305:2484.
Ref ID: 37163
- 443 Trabert B, Pinto L, Hartge P, Kemp T, Black A, Sherman ME et al. Pre-diagnostic serum levels of inflammation markers and risk of ovarian cancer in the prostate, lung, colorectal and ovarian cancer (PLCO) screening trial. *Gynecol Oncol* 2014; 135:297-304.
Ref ID: 37327
- 444 Trabert B. Body powder and ovarian cancer risk - what is the role of recall bias? *Cancer Epidemiol Biomarkers Prev* 2016; 25:1369-1370.
Ref ID: 35878
- 445 Trabert B, Poole EM, White E, Visvanathan K, Adami HO, Anderson GL et al. Analgesic use and ovarian cancer risk: An analysis in the ovarian cancer cohort consortium. *JNCI* 2019; 111:137-145.
Ref ID: 37226
- 446 Trabert B, Waterboer T, Idahl A, Brenner N, Brinton LA, Butt J et al. Antibodies against chlamydia trachomatis and ovarian cancer risk in two independent populations. *JNCI* 2019; 111:129-136.
Ref ID: 37214
- 447 Tschopp JM, Schnyder JM, Astoul P, Noppen M, Froudarakis M, Bolliger CT et al. Pleurodesis by talc poudrage under simple medical thoracoscopy: an international opinion. *Thorax* 2009; 64:273-274.
Ref ID: 28411

- 448 Tsevat DG, Wiesenfeld HC, Parks C, Peipert JF. Sexually transmitted diseases and infertility. *Am J Obstet Gynecol* 2017; 216:1-9.
Ref ID: 37216
- 449 Tung KH, Wilkens LR, Wu AH, McDuffie K, Nomura AM, Kolonel LN et al. Effect of anovulation factors on pre- and postmenopausal ovarian cancer risk: revisiting the incessant ovulation hypothesis. *Am J Epidemiol* 2005; 161:321-329.
Ref ID: 35281
- 450 Tworoger SS, Gertig DM, Gates MA, Hecht JL, Hankinson SE. Caffeine, alcohol, smoking, and the risk of incident epithelial ovarian cancer. *Cancer* 2008; 112:1169-1177.
Ref ID: 36422
- 451 Tzonou A, Polychronopoulou A, Hsieh CC, Rebelakos A, Karakatsani A, Trichopoulos D. Hair dyes, analgesics, tranquilizers and perineal talc application as risk factors for ovarian cancer. *Int J Cancer* 1993; 55:408-410.
Ref ID: 34950
- 452 U.S.Environmental Protection Agency. Health Assessment Document for Talc (EPA 600/8-91/217). Washington, DC: U.S. Environmental Protection Agency; 1992.
Ref ID: 36343
- 453 Unknown. Ovarian cancer. *Nat Rev Dis Primers* 2016; 2 (Article # 16062).
Ref ID: 35685
- 454 Urban N, Hawley S, Jane H, Karlan BY, Berg CD, Drescher S et al. Identifying post-menopausal women at elevated risk for epithelial ovarian cancer. *Gynecol Oncol* 2015; 139:253-260.
Ref ID: 35285
- 455 Usset JL, Raghavan R, Tyrer JP, McGuire V, Sieh W, Webb P et al. Assessment of multifactor gene-environment interactions and ovarian cancer risk: candidate genes, obesity, and hormone-related risk factors. *Cancer Epidemiol Biomarkers Prev* 2016; 25:780-790.
Ref ID: 35367
- 456 Vaughan LE, Prizment A, Blair CK, Thomas W, Anderson KE. Aspirin use and the incidence of breast, colon, ovarian, and pancreatic cancers in elderly women in the Iowa Women's Health Study. *Cancer Causes Control* 2016; 27:1395-1402.
Ref ID: 35768
- 457 Verdoodt F, Kjaer SK, Friis S. Influence of aspirin and non-aspirin NSAID use on ovarian and endometrial cancer: Summary of epidemiologic evidence of cancer risk and prognosis. *Maturitas* 2017; 100:1-7.
Ref ID: 36329
- 458 Verdoodt F, Kjaer Hansen M, Kjaer SK, Pottgard A, Friis S, Dehlendorff C. Statin use and mortality among ovarian cancer patients: A population-based cohort study. *Int J Cancer* 2017; 141:279-286.
Ref ID: 36368
- 459 Visvanathan K, Shaw P, May BJ, Bahadiri-Talbott A, Kaushiva A, Risch H et al. Fallopian tube lesions in women at high risk for ovarian cancer: a multicenter study. *Cancer Prev Res (Phila)* 2018; 11:697-706.
Ref ID: 37254
- 460 Vitale P, Panella A, Scilimati A, Perrone MG. COX-1 inhibitors: Beyond structure toward therapy. *Med Res Rev* 2016; 36:641-671.
Ref ID: 37235
- 461 Wang C, Liang Z, Liu X, Zhang Q, Li S. The association between endometriosis, tubal ligation, hysterectomy and epithelial ovarian cancer: meta-analyses. *Int J Environ Res Public Health* 2016; 13:E1138.
Ref ID: 35969
- 462 Wang J, Yang DL, Chen ZZ, Gou BF. Associations of body mass index with cancer incidence among populations, genders, and menopausal status: A systematic review and meta-analysis. *Cancer Epidemiol* 2016; 42:1-8.
Ref ID: 35581
- 463 Wang L, Wang L, Zhang J, Wang B, Liu H. Association between diabetes mellitus and subsequent ovarian cancer in women: A systematic review and meta-analysis of cohort studies. *Medicine (Baltimore)* 2017; 96:e6396.
Ref ID: 36161
- 464 Webb PM, Jordan SJ. Epidemiology of epithelial ovarian cancer. *Best Pract Res Clin Obstet Gynaecol* 2017; 41:3-14.
Ref ID: 35883
- 465 Wehner AP. Cosmetic talc should not be listed as a carcinogen: comments on NTP's deliberations to list talc as a carcinogen. *Regul Toxicol Pharmacol* 2002; 36:40-50.
Ref ID: 35042

- 466 Wentzensen N, Wacholder S. Talc use and ovarian cancer: epidemiology between a rock and a hard place. *JNCI* 2014; 106.
Ref ID: 34931
- 467 Wentzensen N, Poole EM, Trabert B, White E, Arslan AA, Patel AV et al. Ovarian cancer risk factors by histologic subtype: An analysis from the ovarian cancer cohort consortium. *J Clin Oncol* 2016; 34:2888-2898.
Ref ID: 35575
- 468 Wergeland E, Gjertsen F, Vos L, Grimsrud TK. Cause-specific mortality and cancer morbidity in 390 male workers exposed to high purity talc, a six-decade follow-up. *Am J Ind Med* 2017; 60:821-830.
Ref ID: 36364
- 469 White KL, Schildkraut JM, Palmieri RT, Iversen ES, Jr., Berchuck A, Vierkant RA et al. Ovarian cancer risk associated with inherited inflammation-related variants. *Cancer Res* 2012; 72:1064-1069.
Ref ID: 37209
- 470 Whittemore AS, Wu ML, Paffenbarger RS, Jr., Sarles DL, Kampert JB, Grosser S et al. Personal and environmental characteristics related to epithelial ovarian cancer. II. Exposures to talcum powder, tobacco, alcohol, and coffee. *Am J Epidemiol* 1988; 128:1228-1240.
Ref ID: 34942
- 471 Wild P. Lung cancer risk and talc not containing asbestiform fibres: a review of the epidemiological evidence. *Occup Environ Med* 2006; 63:4-9.
Ref ID: 37188
- 472 Williams KA, Terry KL, Tworoger SS, Vitonis AF, Titus LJ, Cramer DW. Polymorphisms of MUC16 (CA125) and MUC1 (CA15.3) in relation to ovarian cancer risk and survival. *PloS One* 2014; 9:e88334.
Ref ID: 34943
- 473 Wong C, Hempling RE, Piver MS, Natarajan N, Mettlin CJ. Perineal talc exposure and subsequent epithelial ovarian cancer: a case-control study. *Obstet Gynecol* 1999; 93:372-376.
Ref ID: 34955
- 474 World Cancer Research Fund. Ovarian cancer. How common is ovarian cancer?
(<https://www.wcrf-uk.org/uk/preventing-cancer/cancer-types/ovarian-cancer>). London: World Cancer Research Fund; 2017.
Ref ID: 37410
- 475 World Cancer Research Fund. Can cosmetics and toiletries cause cancer?
(<https://www.wcrf.org/informed/articles/can-cosmetics-and-toiletries-cause-cancer>). London: World Cancer Research Fund; 2017.
Ref ID: 37409
- 476 World Health Organization. WHO Classification of Tumours of Female Reproductive Organs. 4th ed. Lyon: International Agency for Research on Cancer (IARC); 2014.
Ref ID: 35600
- 477 Worley MJ, Welch WR, Berkowitz RS, Ng SW. Endometriosis-associated ovarian cancer: a review of pathogenesis. *Int J Mol Sci* 2013; 14:5367-5379.
Ref ID: 37289
- 478 Wright JD. What is new in ovarian cancer? Best articles from the past year. *Obstet Gynecol* 2018; 132:1498-1499.
Ref ID: 37373
- 479 Wu AH, Pearce CL, Tseng CC, Pike MC. African Americans and Hispanics Remain at Lower Risk of Ovarian Cancer Than Non-Hispanic Whites after Considering Nongenetic Risk Factors and Oophorectomy Rates. *Cancer Epidemiol Biomarkers Prev* 2015; 24:1094-1100.
Ref ID: 35263
- 480 Wu AH, Pearce CL, Tseng CC, Templeman C, Pike MC. Markers of inflammation and risk of ovarian cancer in Los Angeles County. *Int J Cancer* 2009; 124:1409-1415.
Ref ID: 35000
- 481 Wu AH, Pearce CL, Tseng CC, Pike MC. African Americans and Hispanics remain at lower risk of ovarian cancer than Non-Hispanic Whites after considering nongenetic risk factors and oophorectomy rates. *Cancer Epidemiol Biomarkers Prev* 2015; 24:1094-1100.
Ref ID: 36039
- 482 Wu AH, Pearce CL, Lee A, Tseng C, Jotwani A, Patel P et al. Timing of births and oral contraceptive use influences ovarian cancer risk. *Int J Cancer* 2017; 141:2392-2399.
Ref ID: 36366
- 483 Wylie AG, Virta RL, Russek E. Characterizing and discriminating airborne amphibole cleavage fragments and amosite fibers: Implications for the NIOSH method. *Am Ind Hyg Assoc J* 1985; 46:197-201.
Ref ID: 37178

- 484 Xia H, Wang XJ, Zhou Q, Shi HZ, Tong ZH. Efficacy and safety of talc pleurodesis for malignant pleural effusion: a meta-analysis. *PloS One* 2014; 9:e87060.
Ref ID: 35109
- 485 Xu X, Wang Y, Guo W, Zhou Y, Lv C, Chen X et al. The significance of the alteration of 8-OHdG in serous ovarian carcinoma. *J Ovarian Res* 2013; 6:74.
Ref ID: 37268
- 486 Yaman M, Kaya G, Simsek M. Comparison of trace element concentrations in cancerous and noncancerous human endometrial and ovary tissues. *Int J Gynecol Cancer* 2007; 17:220-228.
Ref ID: 36249
- 487 Yanaranop M, Anakrat V, Siricharoenthai S, Nakrangsee S, Thinkhamrop B. Is the risk of ovarian malignancy algorithm better than other tests for predicting ovarian malignancy in women with pelvic masses? *Gynecol Obstet Invest* 2017; 82:47-53.
Ref ID: 35526
- 488 Yang HP, Murphy KR, Pfeifer RM, George N, Garcia-Closas M, Lissowska J et al. Lifetime number of ovulatory cycles and risks of ovarian and endometrial cancer among postmenopausal women. *Am J Epidemiol* 2016; 183:800-814.
Ref ID: 35513
- 489 Yin JG, Liu XY, Wang B, Wang DY, Wei M, Fang H et al. Gene expression profiling analysis of ovarian cancer. *Oncol Lett* 2016; 12:405-412.
Ref ID: 35574
- 490 Yu T, Ma P, Wu D, Shu Y, Gao W. Functions and mechanisms of microRNA-31 in human cancers. *Biomed Pharmacother* 2018; 108:1162-1169.
Ref ID: 37317
- 491 Yun WS, Bae JM. Primary peritoneal serous carcinoma, an extremely rare malignancy: A case report and review of the literature. *Oncol Lett* 2016; 11:4063-4065.
Ref ID: 35582
- 492 Zeng F, Wei H, Yeoh E, Zhang Z, Ren ZF, Colditz GA et al. Inflammatory markers of CRP, IL-6, TNF- α and soluble TNFR2 and the risk of ovarian cancer: a meta-analysis of prospective studies. *Cancer Epidemiol Biomarkers Prev* 2016; 25:1231-1239.
Ref ID: 35577
- 493 Zervomanolakis I, Ott HW, Hadziomerovic D, Mattle V, Seeber BE, Virgolini I et al. Physiology of upward transport in the human female genital tract. *Ann NY Acad Sci* 2007; 1101:1-20.
Ref ID: 37377
- 494 Zezenski R, Ashton WH, Briggs D, Chudkowski M, Kelse JW, MacEachern L et al. Talc: occurrence, characterization, and consumer applications. *Regul Toxicol Pharmacol* 1995; 21:218-229.
Ref ID: 37358
- 495 Zhan X, Wang J, Pan S, Lu C. Tea consumption and the risk of ovarian cancer: A meta-analysis of epidemiological studies. *Oncotarget* 2017; 8:37796-37806.
Ref ID: 36156
- 496 Zhang C, Wang X, Anaya Y, Parodi L, Cheng L, Anderson ML et al. Distinct molecular pathways in ovarian endometrioid adenocarcinoma with concurrent endometriosis. *Int J Cancer* 2018; 143:2505-2515.
Ref ID: 37252
- 497 Zhang D, Bai B, Xi Y, Wang T, Zhao Y. Is aspirin use associated with a decreased risk of ovarian cancer? A systematic review and meta-analysis of observational studies with dose-response analysis. *Gynecol Oncol* 2016; 142:368-377.
Ref ID: 35507
- 498 Zhang D, Li N, Xi Y, Zhao Y, Wang T. Diabetes mellitus and risk of ovarian cancer: A systematic review and meta-analysis of 15 cohort studies. *Diabetes Res Clin Pract* 2017; 130:43-52.
Ref ID: 36416
- 499 Zhang XY, Zhang PY. Recent perspectives of epithelial ovarian carcinoma. *Oncol Lett* 2016; 12:3055-3058.
Ref ID: 35967
- 500 Zhao C, Li S, Zhao M, Zhu H, Zhu X. Prognostic values of DNA mismatch repair genes in ovarian cancer patients treated with platinum-based chemotherapy. *Arch Gynecol Obstet* 2017; still in print.
Ref ID: 36496
- 501 Zhao Z, Xue J, Zhao X, Lu J, Liu P. Prognostic role of autophagy-related proteins in epithelial ovarian cancer: a meta-analysis of observational studies. *Minerva Med* 2017; 108:277-286.
Ref ID: 35975
- 502 Zheng G, Yu H, Hemminki A, Forsti A, Sundquist K, Hemminki K. Familial associations of female breast cancer with other cancers. *Int J Cancer* 2017; still in print.
Ref ID: 36410

- 503 Zhou Z, Zeng F, Yuan J, Tang J, Colditz GA, Tworoger SS et al. Pelvic inflammatory disease and the risk of ovarian cancer: a meta-analysis. *Cancer Causes Control* 2017; 28:415-428.
Ref ID: 36100
- 504 Zondervan KT, Becker CM, Koga K, Missmer SA, Taylor RN, Vigano P. Endometriosis. *Nat Rev Dis Primers* 2018; 4:9.
Ref ID: 37221

Attachment 3: Chronology of Opinions

1982: Cramer et al (1)

"This provides some support for an association between talc and ovarian cancer ... If talc is involved in the etiology of ovarian cancer, it is not clear whether this derives from the asbestos content of talc or from the uniqueness of the ovary which might make it susceptible to carcinogenesis from both talc and other particulates."

1986: IARC Monograph 42 (Talc) (2)

"There is inadequate evidence for the carcinogenicity to humans of talc not containing asbestiform fibres, while there is sufficient evidence for the carcinogenicity to humans of talc containing asbestiform fibres."

1987: IARC Monograph Supplement 7 (Asbestos) (3)

"Some excess of ovarian cancer has been reported in two studies but not in another; exposure to crocidolite was probably more predominant in the studies that showed excesses."

1992: Harlow, Cramer et al (4)

"Because the overall association between genital use of talc and ovarian cancer remains weak, it is unlikely that this exposure-disease pathway is the principal one involved in ovarian cancer etiology." (p. 26)

1995: Harlow & Hartage (5)

"Although several controlled epidemiological studies have investigated the talc and ovarian cancer association, few have collected enough details on methods and frequency of exposures to make a meaningful assessment." (p. 254)

1995: Gross & Berg (6)

"The conclusion reached herein is that the evidence regarding the risk of ovarian cancer associated with talc exposure is equivocal, and further examination of the relationship is required before a sound conclusion can be made." (p. 181)

1996: Heller et al. (7)

"Ovaries were studied from 24 women undergoing incidental oophorectomy who were interviewed regarding talc usage. Twelve subjects reported frequent perineal talc applications; the twelve controls reported no use. ... Talc was identified in all 24 cases by either light or

electron microscopy. Talc particle counts were completely unrelated to reported levels of perineal talc exposure.” (p. 1507)

1999: Cramer et al. (8)

“...the association is still viewed with skepticism based upon weak odds ratios, poor dose-response relationships and an incomplete understanding of the biological mechanism by which talc might lead to ovarian cancer.” (p. 351)

“Despite the consistency noted above, the relatively weak odds ratios observed could reflect potential biases, especially recall and confounding ... The most obvious weakness in the argument for biologic credibility of the talc and ovarian cancer association is the lack of a clear dose response ... we do not know precisely how use of talc in the genital area might induce ovarian cancer...” (p. 354-6)

2000: Gertig et al (9) (Cramer and Colditz were co-authors)

“... the talc hypothesis ...” (p. 251) See Cramer testimony re: Berg (2013) below

2000: Cramer testimony re: Berg (09/25/2013; p. 228)

“Q: So what you’re saying in this paper [Gertig 2000] in terms of your talc and ovarian cancer hypothesis as of 2000 is you’re calling it a hypothesis, right, the talc hypothesis?

...

“Q. Do you agree that at this point in time it was still a hypothesis?

“A: That’s fine to say ... that’s what I thought in 2000.”

2000: Colditz deposition re: Hogans (09/19/2015; p. 298)

“Q. But back in 2000, were you of the opinion that you write in your report in 2015 that epithelial [sic] talc use can cause ovarian cancer?

“A. Not in 2000. I would not have put all the evidence together at that point to say that.”

2004: Ness deposition re: Blaes (06/09/15; p. 255-6)

“Q. And when they discussed those studies in the same article that you've cited, they concluded that "The current body of experimental and epidemiologic evidence is insufficient to establish a causal association between perineal use of talc and ovarian cancer risk." And you disagree with that. Correct?

“A. Based -- I -- based on studies -- I don't have an agreement or a disagreement. Based on studies that ended in 2004 -- yes, 2004. So based on 11-year-old studies and no literature beyond that, yes, I feel that that was reasonable to say that there was insufficient evidence at that time.”

2004: Colditz deposition re: Hogans (10/16/2015; p. 436)

“Q. ... it’s still unclear if talc use truly alters cancer risk. That was you opinion in 2004, correct?

“A. That was the summary of studies then, yes.

...

"Q. If we were here in 2004 you would not have the opinions you have today?

"A. In 2004 I believe the inconsistency was still an issue ... more likely than not that would have been my opinion."

2005: Cramer et al. (10)

"Although our present finding may also meet with skepticism, a testable hypothesis is now suggested by the possible link between genital talc exposure and systemic diminution of anti-MUC1 antibodies." (p. 1130)

2006: Baan et al. (11)

"In February, 2006, 19 scientists from eight countries met at the International Agency for Research on Cancer (IARC), Lyon, France, to reassess the carcinogenicity of ... non-asbestiform talc. These assessments will be published ... After careful assessment of the biases and possible confounding factors, the working group concluded that the epidemiological studies provided limited evidence for the carcinogenicity of perineal use of talc-based body powder, and classified this use as possibly carcinogenic to human beings (ie, group 2B)." (p. 296)

2007: Cramer deposition re: Blaes (05/18/2015 p. 150-1)

"Q: Do you agree, though, that prior to 2007 you never said in any published document ...that talc caused ovarian cancer?

...

"A: There have been several things that have happened since then... We've built up a case showing that the risk is higher in women with certain characteristics or in women of certain age groups ... a stronger biological argument. These have all developed since 2007 in my mind."

2008: Langseth et al. (12)

"The current body of experimental and epidemiological evidence is insufficient to establish a causal association between perineal use of talc and ovarian cancer risk." (p. 359)

2008: Gates et al (13) (Cramer was co-author)

"Epidemiologic evidence suggests a possible association between genital use of talcum powder and risk of epithelial ovarian cancer; however ... the association remains controversial due to the lack of a clear dose-response with increasing frequency or duration of talc use, the possibility of confounding or other biases, and the uncertain biological mechanism." (p. 2436)

2010: IARC Monograph 93 (14)

"6.1 Cancer in humans

"Perineal use of talc-based body powder is *possibly carcinogenic to humans* (Group 2B)."

2011: Your Disease Risk.com (Siteman Cancer Center) (15)

This web site does not list talc as a “Risk Factor” for ovarian cancer. (see Attachment #2)

2011: Colditz deposition re: Hogans (09/19/2015; p. 67)

“Q. Sitting here today, do you know what level of evidence must be reached before a risk factor will be included on Your Disease Risk website?

“A. On Your Disease Risk website, the consensus opinion was that definite and probable causes should be included because the potential benefit to the public of acting on that knowledge would be sufficient to justify having it on the site.” (p.67)

Q. So the last review was in 2012?

A. Actually, it was 2011, I believe. (p. 58)

2011: Rosenblatt et al (16)

“**Conclusions**—The International Agency for Research on Cancer has designated perineal exposure to talc (via the application of genital powders) as a possible carcinogen in women. A modest association of ovarian cancer with this exposure was seen in our study and in some previous ones, but that association generally has not been consistent within or among studies. Therefore, no stronger adjective than “possible” appears warranted at this time.” (p. 737)

2011: Chen et al (17) (Cramer was co-author)

“The etiology of ovarian cancer is poorly understood but there is clearly a heritable component.”

2013: Cramer testimony re: Berg (09/25/2013; p. 211)

“Q: So as we sit here today, is there any peer-reviewed paper, peer-reviewed paper, not expert report, but any peer-reviewed paper that makes the statement that talc, in fact, causes ovarian cancer?

“A. I’m not aware of that.”

2013: Terry et al. (18) (Ness was co-author)

“More work is needed to understand how genital powders may exert a carcinogenic effect, and which constituents (e.g., talc) may be involved.” (p. 820)

2014: Houghton et al (19)

“Ever use of perineal powder was not associated with risk of ovarian cancer compared with never use. Individually, ever use of powder on the genitals sanitary napkins, or diaphragms was not associated with risk of ovarian cancer compared with never use, nor were there associations with increasing durations of use. Estimates did not differ when stratified by age or tubal ligation status. “**Conclusion** Based on our results, perineal powder use does not appear to influence ovarian cancer risk.” (p. 1 of 6)

2014: Wentzensen and Wacholder (20)

"Evidence on perineal talc use as a risk factor for ovarian cancer is more equivocal ... The biological basis of possible talc carcinogenicity is not understood ... Overall, the evidence regarding carcinogenicity of talc use remains inconclusive." (p. 2 of 2)

2015: Ness (21)

"Hill's tenets suggest that talc use causes ovarian cancer".

2015: Cramer deposition re: Blaes (05/18/2015 p. 112)

"Q: ... do you ever recall saying in any of your published papers that talc causes ovarian cancer?

"A: I would have to review them and see, but probably I did not go to that extent to say it."

2015: Cramer deposition re: Blaes (05/18/2015 p. 108)

"Q: Do you consider the MUC1 hypothesis to be still a hypothesis?

"A: Yes, it a hypothesis ... but it's a viable hypothesis".

2015: Cramer deposition re: Ristesund (11/13/2013; p. 93)

"Q: Can you cite for me any authors you [sic] have published a peer reviewed piece of literature where they've said that endometrioid cancer is caused by perineal talc dusting?

"A: "Nobody has said, nobody said that – no, I cannot."

2015: Cancer Council of Australia (22) (11/19/2015)

"Perineal use of talc-based body powder

Not supported by relevant experimental findings" (see Attachment #2)

2016: Webb (23)

"Talc is a natural mineral fiber similar to asbestos, a known carcinogen, and talc fibres have been detected in ovarian tissue. Case-control studies have consistently shown a 20-25% increased risk of ovarian cancer among women who used talc in the genital region. This would equate to a 1.6% lifetime risk of ovarian cancer for a talc-user compared to 1.3% for a non-user. However it is still uncertain whether the association is causal because there is little evidence that risk increases with increasing frequency and/or duration of talc use and the association does not appear to be weaker among women who have undergone procedures such as tubal ligation that would prevent talc from reaching the ovaries. Prospective studies have not reported significant associations overall, although one did report an association for serous cancers, but they had limited power to detect an effect of this magnitude."

2016: Narod (24)

“For the sake of argument, let us suppose that the true risk ratio for ever use of talc and the development of ovarian cancer is 1.2. This estimate is the one generated from the large pooling study and is the level of risk that is under discussion in the media. It is possible that the true risk might be lower or higher than this single estimate. In this scenario, where talc increases the risk of ovarian cancer by 20% beyond the baseline of 1.3% lifetime, it would be challenging to convince the epidemiology community that there is a danger. Simply put, a risk ratio of this size falls outside the resolution of most epidemiologic studies;”

“I don't think we should try to ascribe any particular case of ovarian cancer to prior talc use. The estimate of a risk ratio of 1.2 provides information about the potential contribution of talc to the burden of ovarian cancer in the population, but is not helpful in determining if a specific case is, or is not, the result of talc exposure.”

2016: National Research Council (25)

“The use of perineal talcum powder has been associated with a 20 to 30 percent increased risk of ovarian cancer, although it also has been shown to vary by histologic subtype.”

2016: Brigham and Women's Hospital (26)

“It's not clear if using talcum powder on the genital area raises the risk for ovarian cancer. Talk with your healthcare provider if you decide that you want to use talcum powder.”

(see Attachment #2)

2017: Berge (27)

“... our meta-analysis identified as small but statistically significant association between genital talc use and risk of ovarian cancer; however, this association was limited to the serous histologic type, and to case-control studies. The results by histologic type might argue for specificity of the association, in the absence, however, of a biologic rationale for an effect on serous carcinoma compared with other types. Several aspects of our results, including the heterogeneity of results between case-control and cohort studies, and the lack of a dose-response with duration and frequency or use, however, do not support a causal interpretation of the association.”

2018: Berge (28)

“... our meta-analysis identified a small but statistically significant association between genital talc use and risk of ovarian cancer; however, this association was limited to the serous histologic type, and to case-control studies. The results by histologic type might argue for specificity of the association, in the absence, however, of a biologic rationale for an effect on serous carcinoma compared with other types. Several aspects of our results, including the heterogeneity of results between case-control and cohort studies, however, do not support a causal interpretation of the association.”

2018: Penninkilampi (29)

“In the present context, the association between talc use and ovarian cancer takes on considerable relevance, as the pharmaceutical and consumer products company Johnson & Johnson has recently had damages levied to the total of US\$717 million against them in five law

suits. In these cases, juries decided that the use of talcum powder caused or contributed to the development of the plaintiff's ovarian cancer. The evidence for the association between perineal talc use and ovarian cancer is based on the body of knowledge from observational studies, and most of these have been retrospective case-control studies prone to recall bias. Hence, while perineal talc use has not been shown to be safe, in a similar regard, a certain causal link between talc use and ovarian cancer has not yet been established."

"The present meta-analysis reports a positive association between perineal talc use and ovarian cancer, specifically of the serous and endometrioid histologic subtypes. The mechanism by which perineal talc use may increase the risk of ovarian cancer is uncertain ... The potential mechanism by which genital talc is associated with an increased risk of ovarian cancer hence remains unclear."

"The results of this review indicate that perineal talc use is associated with a 24%–39% increased risk of ovarian cancer. While the results of case-control studies are prone to recall bias, especially with intense media attention following the commencement of litigation in 2014, the confirmation of an association in cohort studies between perineal talc use and serous invasive ovarian cancer is suggestive of a causal association. Additional epidemiologic evidence from prospective studies with attention to effects within ovarian cancer subtype is warranted. There is a substantial need for further research on a potential mechanism by which ovarian cancer may be caused by talc, as this will allow a causal relationship to be established or rejected with more certainty."

2018: Health Canada (30)

"The meta-analyses of the available human studies in the peer-reviewed literature indicate a consistent and statistically significant positive association between perineal exposure to talc and ovarian cancer. Further, available data are indicative of a causal effect. Given that there is potential for perineal exposure to talc from the use of various self-care products (e.g., body powder, baby powder, diaper and rash creams, genital antiperspirants and deodorants, body wipes, bath bombs), a potential concern for human health has been identified.

"There are limitations with the human epidemiological data. Potential sources of bias include selection bias due to low response rates or from limiting subjects, and exposure misclassification due to recall bias (Taher et al. 2018). Muscat and Huncharek (2008) also proposed that symptoms of ovarian cancer prior to diagnosis may increase the perineal use of talc and bias the results. However, Narod (2016) and Berge and colleagues (2018) put less emphasis on recall bias. In studies where the exposure is simple (e.g., never versus ever use), recall bias is unlikely to be an important source of bias (Narod 2016). The positive association is strongest for the serous histologic type (Berge et al. 2018; Taher et al. 2018); findings that the association may vary by histologic type detracts from the hypothesis of report bias, as this type of bias would likely operate for all histologic types (Berge et al. 2018).

"Ovarian cancer, in general, is not well understood (National Academy of Sciences, Engineering, and Medicine 2016), and a comparable animal model is not available. Health Canada has identified self-care products with the potential for perineal exposure (e.g., baby powder, body powders, diaper and rash creams, genital antiperspirants and deodorants, body wipes, bath

bombs); however, there is no indication exactly how the products are being used, the extent to which they would contribute to perineal exposure, and with what frequency and amount.”

2018: Saed (31)

“Ovarian cancer is the leading cause of death from gynecologic malignancies yet the underlying pathophysiology is not clearly established ... The origin and causes of ovarian tumors remains under debate. Injury to surface epithelial ovarian cells due to repeated ovulation is thought to induce tumorigenesis in these cells and is known as the “incessant ovulation hypothesis.” Additionally, hormonal stimulation of the surface epithelium of the ovary has been described to initiate tumorigenesis in surface epithelial cells and is known as the “gonadotropin hypothesis.” Moreover, the fallopian tube, and not the ovary, has been suggested to be the origin for most epithelial ovarian cancer. Nevertheless, many cases of ovarian cancer continue to be described as *de novo*.”

“Although there is strong epidemiological evidence to suggest an association between talc use and ovarian cancer, the direct link and precise mechanisms have yet to be elucidated ... there is a direct effect of talc on the molecular levels of oxidant and antioxidants, elucidating a potential mechanism for the development of ovarian cancer in response to talc.”

2018: Centers for Disease Control and Prevention (32)

This web site does not list talc as a “Risk Factor” for ovarian cancer and it does not discuss avoidance of talc as one of the ways that a woman can reduce her risk of ovarian cancer. (see Attachment #2)

2018: National Cancer Institute (33)

“Studies of women who used talcum powder (talc) dusted on the perineum (the area between the vagina and the anus) have not found clear evidence of an increased risk of ovarian cancer.”
(see Attachment #2)

2018: American Cancer Society (34) (04/11/2018)

“It has been suggested that talcum powder applied directly to the genital area or on sanitary napkins may be carcinogenic (cancer-causing) to the ovaries. Some, studies suggest a very slight increase in risk of ovarian cancer in women who used talc on the genital area. ... Proving the safety of these newer products will require follow-up studies of women who have used them for many years.” (see Attachment #2)

2018: Your Disease Risk.com (Siteman Cancer Center) (35)

“The regular use of talcum powder in the genital area has been linked to an increased risk of ovarian cancer. It is not clear exactly why this is.” (35) (see Attachment #2)

2019: Taher (36)

“In recent decades, there has been increasing concern that perineal exposure to talc, a commonly used personal care product, might be associated with an increased risk of ovarian cancer. However, the data describing this association is somewhat inconsistent.”

“We conducted an extensive search, examination, assessment and analysis of evidence from published human and non-human original as well as all published reviews that considered the association between genital/perineal use of talc powder and risk of ovarian cancer ... Consistent with previous evaluations the IARC in 2010 (14), and subsequent evaluations by individual investigators (18;28;29), the present comprehensive evaluation of all currently available relevant data indicates that perineal exposure to talc powder is a possible cause of ovarian cancer in humans.”

2019: National Cancer Institute (37)

“The weight of evidence does not support an association between perineal talc exposure and an increased risk of ovarian cancer. Results from case-control and cohort studies are inconsistent.”
(see Attachment #2)

Chronology of Opinions: Reference List

- (1) Cramer DW, Welch WR, Scully RE, Wojciechowski CA. Ovarian cancer and talc. A case-control study. *Cancer* 1982; 50:372-376.
- (2) International Agency for Research on Cancer. Talc. IARC Monogr Eval Carcinog Risks Chem Human 1986; 42:185-224.
- (3) International Agency for Research on Cancer. Overall Evaluations of Carcinogenicity: An updating of IARC Monographs Volumes 1 to 42. 7 ed. Lyon: IARC; 1987.
- (4) Harlow BL, Cramer DW, Bell DA, Welch WR. Perineal exposure to talc and ovarian cancer risk. *Obstet Gynecol* 1992; 80:19-26.
- (5) Harlow BL, Hartge PA. A review of perineal talc exposure and risk of ovarian cancer. *Regul Toxicol Pharmacol* 1995; 21:254-260.
- (6) Gross AJ, Berg PH. A meta-analytical approach examining the potential relationship between talc exposure and ovarian cancer. *J Expo Anal Environ Epidemiol* 1995; 5:181-195.
- (7) Heller DS, Westhoff C, Gordon RE, Katz N. The relationship between perineal cosmetic talc usage and ovarian talc particle burden. *Am J Obstet Gynecol* 1996; 174:1507-1510.
- (8) Cramer DW, Liberman RF, Titus-Ernstoff L, Welch WR, Greenberg ER, Baron JA et al. Genital talc exposure and risk of ovarian cancer. *Int J Cancer* 1999; 81:351-356.
- (9) Gertig DM, Hunter DJ, Cramer DW, Colditz GA, Speizer FE, Willett WC et al. Prospective study of talc use and ovarian cancer. *JNCI* 2000; 92:249-252.
- (10) Cramer DW, Titus-Ernstoff L, McKolanis JR, Welch WR, Vitonis AF, Berkowitz RS et al. Conditions associated with antibodies against the tumor-associated antigen MUC1 and their relationship to risk for ovarian cancer. *Cancer Epidemiol Biomarkers Prev* 2005; 14:1125-1131.
- (11) Baan R, Straif K, Grosse Y, Secretan B, El Ghissassi F, Coglian V. Carcinogenicity of carbon black, titanium dioxide, and talc. *Lancet Oncol* 2006; 7:295-296.
- (12) Langseth H, Hankinson SE, Siemiatycki J, Weiderpass E. Perineal use of talc and risk of ovarian cancer. *J Epidemiol Community Health* 2008; 62:358-360.
- (13) Gates MA, Tworoger SS, Terry KL, Titus-Ernstoff L, Rosner B, De Vivo I et al. Talc use, variants of the GSTM1, GSTT1, and NAT2 genes, and risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers Prev* 2008; 17:2436-2444.

- (14) International Agency for Research on Cancer. Carbon Black, Titanium Dioxide, and Talc. IARC Monogr Eval Carcinog Risks Chem Human 2010; 93:277-413.
- (15) Siteman Cancer Center. Your Disease Risk (at: <http://www.yourdiseaserisk.wustl.edu/>). St. Louis: Siteman Cancer Center; 2013.
- (16) Rosenblatt KA, Weiss NS, Cushing-Haugen KL, Wicklund KG, Rossing MA. Genital powder exposure and the risk of epithelial ovarian cancer. Cancer Causes Control 2011; 22:737-742.
- (17) Cramer DW, Titus-Ernstoff L, Vitonis AF. Genital talc use and ovarian cancer: Influence of histologic type and menopausal status on strength and dose response of the association. [abstract LB-446] In Proceedings of the 102nd Annual Meeting of the American Association for Cancer Research, April 2-6, 2011. Cancer Res 2011; 71 (Suppl 8).
- (18) Terry KL, Karageorgi S, Shvetsov YB, Merritt MA, Lurie G, Thompson PJ et al. Genital powder use and risk of ovarian cancer: a pooled analysis of 8,525 cases and 9,859 controls. Cancer Prev Res (Phila) 2013; 6:811-821.
- (19) Houghton SC, Reeves KW, Hankinson SE, Crawford L, Lane D, Wactawski-Wende J et al. Perineal powder use and risk of ovarian cancer. JNCI 2014; 106.
- (20) Wentzensen N, Wacholder S. Talc use and ovarian cancer: epidemiology between a rock and a hard place. JNCI 2014; 106.
- (21) Ness R. Does talc exposure cause ovarian cancer? (IGCS-0015). International Journal of Gynecological Cancer 2015; 25 (Suppl 1):51.
- (22) Cancer Council of Australia. Inferred Risk (at: <https://www.cancer.org.au/about-cancer/causes-of-cancer/environmental-causes/inferred-risk.html>). Sydney: Cancer Council of Australia; 2018.
- (23) Webb PM, Jordan SJ. Epidemiology of epithelial ovarian cancer. Best Pract Res Clin Obstet Gynaecol 2017; 41:3-14.
- (24) Narod SA. Talc and ovarian cancer. Gynecol Oncol 2016; 141:410-412.
- (25) National Academies of Sciences EaM. Ovarian Cancers: Evolving Paradigms in Research and Care. Washington, D.C.: The National Academies Press; 2016.
- (26) Brigham and Women's Hospital. Ovarian Cancer (<http://healthlibrary.brighamandwomens.org/search/34,17170-1>). Boston: Brigham and Women's Hospital; 2019.

- (27) Berge W, Mundt K, Luu H, Boffetta P. Genital use of talc and risk of ovarian cancer: a meta-analysis. Eur J Cancer Prev 2017; DOI:10.1097/CEJ.0000000000000340.
- (28) Berge W, Mundt K, Luu H, Boffetta P. Genital use of talc and risk of ovarian cancer: a meta-analysis. Eur J Cancer Prev 2018; 27:248-257.
- (29) Penninkilampi R, Eslick GD. Perineal talc use and ovarian cancer: A systematic review and meta-analysis. Epidemiology 2018; 29:41-49.
- (30) Talc (Chemical Abstracts Service Registry Number 14807-96-6). Environment and Climate Change Canada; 2018.
- (31) Saed GM, Morris RT, Fletcher NM. New Insights into the Pathogenesis of Ovarian Cancer: Oxidative Stress. In: Devaja O, Papadopoulos A, editors. Ovarian Cancer - From Pathogenesis to Treatment. 2018. 83-110.
- (32) CDC. Ovarian Cancer (at: https://www.cdc.gov/cancer/ovarian/basic_info/risk_factors.htm). Atlanta: Centers for Disease Control and Prevention; 2018.
- (33) National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention (PDQ) - Patient Version (at: https://www.cancer.gov/types/ovarian/patient/ovarian-prevention-pdq#section/_11). Washington, DC: National Cancer Institute; 2018.
- (34) American Cancer Society. Ovarian Cancer (at: <https://www.cancer.org/cancer/ovarian-cancer/causes-risks-prevention/risk-factors.html>). 2019.
- (35) Siteman Cancer Center. Your Disease Risk (at: <https://siteman.wustl.edu/prevention/ydr/>). St. Louis: Siteman Cancer Center; 2019.
- (36) Taher MK, Farhat N, Karyakina NA, Shilnikova N, Ramoju S, Gravel CA et al. Systematic Review and Meta-Analysis of the Association Between Perineal Use of Talc and Risk of Ovarian Cancer. 2018.
- (37) National Cancer Institute. Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention—for Health Professionals (PDQ®) (at: https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#section/_9). Washington, DC: National Cancer Institute; 2019.

Attachment 4: Web Pages

2013: YourDiseaseRisk.com (Siteman Cancer Center)

http://www.yourdiseaserisk.wustl.edu/YDRDefault.aspx?ScreenControl=YDRGeneral&ScreenName=YDROvarianRisk_List (2013)

“Cancer - Ovarian Cancer”

“Risk Factors

Most scientists agree that these findings affect the risk of ovarian cancer. Some may apply to you, but others may not.

Age

Family History

Jewish ethnicity

Height

Birth control pills

Number of births

Breastfeeding

Tied fallopian tubes

Hysterectomy”

2015: Cancer Council of Australia (accessed 02/22/19)

<https://www.cancer.org.au/about-cancer/causes-of-cancer/environmental-causes/inferred-risk.html>

“Inferred Risks

Perineal use of talc-based body powder

Situation	Perineal use of talc-based body powder
Exposure	Women using body powder
Carcinogen	Talc used in this manner
Principal route of exposure	Retrograde absorption via reproductive tract
Target organ	Ovary
Comment	Not supported by relevant experimental findings”

2016: Brigham and Women’s Hospital (accessed 02/22/19)

<http://healthlibrary.brighamandwomens.org/Search/34,17170-1>

“Use of talcum powder

It’s not clear if using talcum powder on the genital area raises the risk for ovarian cancer. Talk with your healthcare provider if you decide that you want to use talcum powder.”

2017: World Cancer Research Fund (accessed 02/22/19)

<https://www.wcrf.org/informed/articles/can-cosmetics-and-toiletries-cause-cancer>

“Some studies have found a link between talcum powder (talc) and ovarian cancer, but there’s not enough evidence to be certain of this. Even if there were an increased risk, scientists estimate it would be small.”

2018: National Cancer Institute (accessed 02/22/19)

(http://www.cancer.gov/types/ovarian/patient/ovarian-prevention-pdq#section/_11)

“It is not clear whether the following affect the risk of ovarian, fallopian tube, and primary peritoneal cancer:

...

“Talc

Studies of women who used talcum powder (talc) dusted on the perineum (the area between the vagina and the anus) have not found clear evidence of an increased risk of ovarian cancer.”

2018: Centers for Disease Control and Prevention (accessed 02/22/19)

http://www.cdc.gov/cancer/ovarian/basic_info/risk_factors.htm

“What Are the Risk Factors for Ovarian Cancer?

There is no way to know for sure if you will get ovarian cancer. Most women get it without being at high risk. However, several factors may increase a woman's risk for ovarian cancer, including if you—

- Are middle-aged or older.

- Have close family members (such as your mother, sister, aunt, or grandmother) on either your mother’s or your father’s side, who have had ovarian cancer.

- Have a genetic mutation (abnormality) called BRCA1 or BRCA2, or one associated with Lynch syndrome.

- Have had breast, colorectal (colon), or cervical cancer, or melanoma.

- Have an Eastern European (Ashkenazi) Jewish background.

- Have never given birth or have had trouble getting pregnant.

- Have endometriosis (a condition where tissue from the lining of the uterus grows elsewhere in the body).

In addition, some studies suggest that women who take estrogen by itself (without progesterone) for 10 or more years may have an increased risk of ovarian cancer.”

“What Can I Do to Reduce My Risk of Ovarian Cancer?

There is no known way to prevent ovarian cancer. But these things may lower a woman’s chance of getting ovarian cancer.

- Having used birth control pills.

- Having had a tubal ligation (getting your tubes tied), both ovaries removed, or a hysterectomy (an operation in which the uterus, and sometimes the cervix, is removed).

- Having given birth.

- Breastfeeding. Some studies suggest that women who breastfeed for a year or more may have a modestly reduced risk of ovarian cancer.”

2018: American Cancer Society (accessed 02/22/19)

<https://www.cancer.org/cancer/ovarian-cancer/causes-risks-prevention/risk-factors.html>

“Talcum powder

“It has been suggested that talcum powder might cause cancer in the ovaries if the powder particles (applied to the genital area or on sanitary napkins, diaphragms, or condoms) were to travel through the vagina, uterus, and fallopian tubes to the ovary.”

“Many studies in women have looked at the possible link between talcum powder and cancer of the ovary. Findings have been mixed, with some studies reporting a slightly increased risk and some reporting no increase. Many case-control studies have found a small increase in risk. But these types of studies can be biased because they often rely on a person’s memory of talc use many years earlier. One prospective cohort study, which would not have the same type of potential bias, has not found an increased risk. A second found a modest increase in risk of one type of ovarian cancer.”

“For any individual woman, if there is an increased risk, the overall increase is likely to very be small. Still, talc is widely used in many products, so it is important to determine if the increased risk is real. Research in this area continues.”

2018: Ovacome (accessed 02/22/19)

<https://www.ovacome.org.uk/talcum-powder-and-ovarian-cancer>

“Is there a link between ovarian cancer and talcum powder?

There have been worries for some years that using talcum powder on the genital area may increase the risk of ovarian cancer. However, so far this has not been proved by research.”

2018: YourDiseaseRisk.com (Siteman Cancer Center) (accessed 02/22/19)

<https://siteman.wustl.edu/prevention/ydr/>

“Prevention Tips

Over 22,000 women in the United States are diagnosed with ovarian cancer each year. Though ovarian cancer has different subtypes, most scientists agree that these things affect the overall risk of ovarian cancer. Some may apply to you, but others may not. And some you can change, but others you cannot...”

“Things you can change: ...

Avoid talcum powder

The regular use of talcum powder in the genital area has been linked to an increased risk of ovarian cancer. It is not clear exactly why this is.”

2019: National Cancer Institute (accessed 02/22/19)

[http://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#section/ 9](http://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#section/9) (01/04/2019)

“Factors with Inadequate Evidence of an Association Risk of Ovarian, Fallopian Tube, and Primary Peritoneal Cancer: Perineal talc exposure

“The weight of evidence does not support an association between perineal talc exposure and an increased risk of ovarian cancer. Results from case-control and cohort studies are inconsistent. A meta-analysis of 16 studies observed an increased risk with the use of talc (RR, 1.33; 95% CI, 1.16–1.45); however, a dose response relationship was not found. A pooled analysis from the Ovarian Cancer Association Consortium, composed of multiple case-control studies, included 8,525 cases and 9,859 controls, found a modest increased risk of epithelial ovarian cancer associated with genital powder use (OR, 1.24; 95% CI, 1.15–1.33), but the trend across increasing lifetime number of applications was not statistically significant (P trend = .17). A population-based case-control study of African American women in the United States found an association between genital powder use and risk of epithelial ovarian cancer (OR, 1.44; 95% CI, 1.11–1.86). In this study of 584 cases and 745 controls, a dose-response relationship for *any* genital powder use was reported. Specifically, among *any* genital powder use, daily powder use was associated with increased adjusted OR of developing ovarian cancer (OR, 1.71; 95% CI, 1.26–2.33) compared with less than daily use (OR, 1.12; 95% CI, 0.80–1.58). A cohort study among nurses did not observe a risk of ovarian cancer associated with perineal talc use (RR, 1.09; 95% CI, 0.86–1.37) and there was no evidence of increased risk with increasing frequency of use. Another prospective study, The Women’s Health Initiative, examined the association between perineal powder use and the development of ovarian cancer among 61,576 women without a history of cancer at enrollment and who provided exposure information. Among this group, 429 cases of ovarian cancer occurred. Powder use on genitals, sanitary napkins, and diaphragms was examined individually and as a combined exposure. Women were followed for a mean of 12.4 years. An association of ovarian cancer with ever-use was not found when analyzed either by individual method of exposure or by overall combined exposure. The observed risk (hazard ratio) for combined exposure to perineal powder was 1.06 (95% CI, 0.87–1.28) and there was no increased risk observed for increasing duration of use.”

Exhibit 11

Jonathan Borak, M.D., DABT

Page 1

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NEW JERSEY

- - -

IN RE: JOHNSON & :
JOHNSON TALCUM POWDER :
PRODUCTS MARKETING, :
SALES PRACTICES, AND : NO. 16-2738
PRODUCTS LIABILITY : (FLW) (LHG)
LITIGATION :
:
THIS DOCUMENT RELATES :
TO ALL CASES :

- - -

April 1, 2019

- - -

Videotaped deposition of
JONATHAN BORAK, M.D., DABT, taken
pursuant to notice, was held at the Omni
New Haven Hotel, 155 Temple Street, New
Haven, Connecticut, beginning at 9:07
a.m., on the above date, before Michelle
L. Gray, a Registered Professional
Reporter, Certified Shorthand Reporter,
Certified Realtime Reporter, and Notary
Public.

- - -

GOLKOW LITIGATION SERVICES
877.370.3377 ph | 917.591.5672 fax
deps@golkow.com

Jonathan Borak, M.D., DABT

Page 2

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

APPEARANCES:

GOLOMB & HONIK P.C.

BY: RICHARD GOLOMB, ESQ.

BENJAMIN ISSER, ESQ.

1835 Market Street, Suite 2900

Philadelphia, Pennsylvania 19103

(215) 278-4449

rgolomb@golombhonik.com

bisser@golombhonik.com

- and -

ASHCRAFT & GEREL, LLP

BY: JAMES F. GREEN, ESQ.

1825 K Street, NW, Suite 700

Washington, D.C. 20006

(203) 783-6400

Jgreen@ashcraftlaw.com

- and -

THE MENELO LAW GROUP

BY: RON MICHAEL MENELO, ESQ.

The Gold Building

234 Church Street, 6th Floor

New Haven, Connecticut 06510

(203) 787-9222

Rmm@meneolawgroup.com

Representing the Plaintiffs

SEYFARTH SHAW, LLP

BY: THOMAS T. LOCKE, ESQ.

975 F Street, NW

Washington, D.C. 20004

(202) 463-2400

tlocke@seyfarth.com

Representing the Defendant, PCPC

Page 4

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

- - -

I N D E X

- - -

Testimony of:

JONATHAN BORAK, M.D., DABT

By Mr. Golomb 10

- - -

E X H I B I T S

- - -

NO. DESCRIPTION PAGE

Borak-1 Notice of Deposition 13

Borak-2 Curriculum Vitae 31

Borak-3 The TASA Group 229

Invoices

Borak-4 Specialists in 83

Occupational &

Environmental Health

Jonathan Borak & Company

Borak-5 Bibliography 116

Profile Jonathan

Borak, MD

Yale Website

Borak-6 Deposition and 94

Trial Testimony

List

Page 3

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

APPEARANCES: (Cont'd.)

SHOOK, HARDY & BACON, LLP

BY: MARK C. HEGARTY, ESQ.

2555 Grand Boulevard

Kansas City, Missouri 64108

(816) 474-6550

Mhegarty@shb.com

Representing the Defendant, Johnson

& Johnson entities

TUCKER ELLIS, LLP

BY: SANDRA J. WUNDERLICH, ESQ.

100 South Fourth Street, Suite 600

Saint Louis, Missouri 63102

(314) 256-2550

Sandra.wunderlich@tuckerellis.com

Representing the Defendant, PTI

Royston LLC and PTI Union LLC

ALSO PRESENT:

VIDEOTAPE TECHNICIAN:

Dan Lawlor

Page 5

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

- - -

E X H I B I T S (Cont'd.)

- - -

NO. DESCRIPTION PAGE

Borak-7 Expert Report of 172

Jonathan Borak, MD,

DABT, 2/25/19

Borak-8 Reference List 245

Borak-9 Demonstrative 274

Statistically

Significant Studies

1982 to 2018

Borak-10 Attachment 1 263

Expert Reports,

Testimony and

Other Related Materials

Borak-14 Attachment 2 278

Materials Considered

Borak-15 Attachment 3 280

Chronology of

Opinions

Borak-16 Chronology of 286

Opinions: Reference

List

Borak-17 Attachment 4 292

Web Pages

Borak-19 Report of 205

Jonathan Borak, MD

DABT, 1/17/17

2 (Pages 2 to 5)

Jonathan Borak, M.D., DABT

Page 6

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

EXHIBITS (Cont'd.)

NO.	DESCRIPTION	PAGE
Borak-21	Affidavit of Jonathan Borak, MD, DABT	314
Borak-22	Chronic Beryllium Disease: The Search For a Dose-Response	324
Borak-25	Draft Screening Assessment 12/2018	335
Borak-28	Demonstrative Invoice Totals	158
Borak-29	Dr. Borak Supplemental Materials Considered	352
Borak-30	Technical Advisory Service for Attorneys (TASA) Invoices	154
Borak-31	NCI PDQ as of 8/8/14	255
Borak-32	High-Grade Serous Ovarian Cancer: Basic Sciences (Lisio)	354

Page 7

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

EXHIBITS (Cont'd.)

NO.	DESCRIPTION	PAGE
Borak-33	Memorandum 3/27/19 RE: Talc MDL Plaintiff Expert Invoices	230

Page 8

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

DEPOSITION SUPPORT INDEX

Direction to Witness Not to Answer

PAGE LINE

None.

Request for Production of Documents

PAGE LINE

None.

Stipulations

PAGE LINE

None.

Questions Marked

PAGE LINE

None.

Page 9

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

THE VIDEOGRAPHER: We are now on the record. My name is Dan Lawlor. I'm a videographer with Golkow Litigation Services.

Today's date is April 1st, 2019, and the time is 9:07 a.m.

This video deposition is being held in New Haven, Connecticut, in the matter of Talcum Powder Litigation, MDL Number 2738.

The deponent is Jonathan Borak.

Counsel will be noted on the stenographic record.

The court reporter is Michelle Gray who will now swear in the witness.

... JONATHAN BORAK, M.D., DABT, having been first duly sworn, was examined and testified as follows:

3 (Pages 6 to 9)

Jonathan Borak, M.D., DABT

Page 10	Page 12
<p>1 EXAMINATION</p> <p>2 - - -</p> <p>3 BY MR. GOLOMB:</p> <p>4 Q. Good morning, Dr. Borak.</p> <p>5 A. Good morning, sir.</p> <p>6 Q. We were introduced briefly</p> <p>7 before the deposition. My name is</p> <p>8 Richard Golomb. I'm going to be asking</p> <p>9 you some questions today.</p> <p>10 A. Thank you.</p> <p>11 Q. I know that you've testified</p> <p>12 once before in the talc litigation in the</p> <p>13 Oules case, correct?</p> <p>14 A. I believe it was the Oules</p> <p>15 case, but yes, I have.</p> <p>16 Q. And Mr. Green, who is seated</p> <p>17 to my right, he was the lawyer who took</p> <p>18 your deposition?</p> <p>19 A. Yes, I recognize him.</p> <p>20 Q. And that was back in June of</p> <p>21 2017?</p> <p>22 A. I don't remember. But that</p> <p>23 may be.</p> <p>24 Q. Okay. Have you given any</p>	<p>1 last four years.</p> <p>2 Q. In the last --</p> <p>3 A. Four years.</p> <p>4 Q. Okay. And is it identified</p> <p>5 on that particular list which cases you</p> <p>6 testified in?</p> <p>7 A. Yes, sir.</p> <p>8 Q. All right. At any time</p> <p>9 during the course of the day, if you want</p> <p>10 to take a break, we will take breaks.</p> <p>11 Just let us know. We're not here to</p> <p>12 torture anybody. It's not a memory test.</p> <p>13 If you want to take a break, just let</p> <p>14 your attorney, Mr. Locke, know and we'll</p> <p>15 take a break. Okay?</p> <p>16 A. Thank you.</p> <p>17 Q. If -- it makes it a lot</p> <p>18 easier for the court reporter if only one</p> <p>19 of us is speaking at a time. So if you</p> <p>20 allow me to finish my question, I'll</p> <p>21 allow you to finish your answer. That</p> <p>22 way you fully hear the question and</p> <p>23 you -- and also one of us is only</p> <p>24 speaking at a time. Okay?</p>
Page 11	Page 13
<p>1 other testimony in the talc litigation,</p> <p>2 other than in that case and here today?</p> <p>3 A. No, sir.</p> <p>4 Q. And other than -- other than</p> <p>5 today and that other -- the case that</p> <p>6 Mr. Green took your deposition, how many</p> <p>7 times have you testified by deposition</p> <p>8 before?</p> <p>9 A. I believe you were given a</p> <p>10 list. And I would -- I don't remember</p> <p>11 the number. There may be six or eight on</p> <p>12 that list in the last four years.</p> <p>13 Q. Okay. And we'll look at</p> <p>14 that list. But that list lists --</p> <p>15 identifies, like you said, about six or</p> <p>16 eight cases. But I'm not sure, and I may</p> <p>17 be wrong about this. I'm not sure</p> <p>18 whether or not it identifies whether you</p> <p>19 testified by deposition, trial, or both.</p> <p>20 A. It indicates whichever.</p> <p>21 Q. Okay. How many times have</p> <p>22 you testified as an expert at trial?</p> <p>23 A. I would have to look at that</p> <p>24 list. I think once, maybe twice, in the</p>	<p>1 A. Yes.</p> <p>2 Q. Okay. Have you seen the</p> <p>3 notice of deposition in this case?</p> <p>4 A. Yes.</p> <p>5 Q. All right. Let me just show</p> <p>6 you -- and I have a couple of questions</p> <p>7 about it.</p> <p>8 (Document marked for</p> <p>9 identification as Exhibit</p> <p>10 Borak-1.)</p> <p>11 BY MR. GOLOMB:</p> <p>12 Q. This is Exhibit 1, which is</p> <p>13 the notice of deposition.</p> <p>14 Have you seen that before?</p> <p>15 A. I believe I have.</p> <p>16 Q. All right. Now, there is</p> <p>17 also -- and I just got it last night, so</p> <p>18 I'm sorry I don't have copies. But</p> <p>19 Mr. Locke, on behalf of Personal Care</p> <p>20 Products Council, responded to that</p> <p>21 notice of deposition and also made some</p> <p>22 objections to the notice of deposition.</p> <p>23 Have you seen that written</p> <p>24 document which is called Defendant</p>

Jonathan Borak, M.D., DABT

Page 14	Page 16
<p>1 Personal Care Products Council's 2 Responses and Objections to Plaintiffs' 3 Notice of Deposition of Jonathan Borak? 4 A. I don't know. May I see 5 what you're looking at? 6 Thank you. It looks like 7 something that I've seen that was on my 8 computer. Maybe last Friday it was sent 9 for me to look at. 10 Q. Last Friday? 11 A. Three days ago, yes, I think 12 so. 13 Q. Okay. I do -- I have some 14 questions about it. If you look at the 15 notice of deposition, Exhibit 1, and go 16 to Question 7. I just want to clarify a 17 couple of things. 18 A. Seven should be easy to 19 find. 20 Q. Okay. You got that? 21 And the question is: "All 22 articles, papers, and/or scientific or 23 technical publications written, prepared, 24 and/or presented by you or in which you</p>	<p>1 Q. Okay. And in fact, the only 2 two, quote-unquote, my term, papers, that 3 you've done is the report that you wrote 4 in Oules and the report that you wrote in 5 this case? 6 A. Those are the only two 7 documents that I've written that were 8 specific to talcum powder. 9 Q. Have you written any 10 articles or published anything -- you 11 said specifically related to talc. 12 Have you written anything 13 generally related to talc? 14 A. Only those things that I've 15 written that are relevant to particulates 16 and dust, but I don't know that they even 17 mention talc. 18 Q. Okay. Question Number 9 is, 19 "All communications between you and any 20 other expert retained or consulted by 21 defendants in connection with the talcum 22 powder litigation, talcum powder 23 products, or talc." 24 And I just want to be clear.</p>
Page 15	Page 17
<p>1 participated in writing, preparing, or 2 presenting that relate to or concern 3 talcum powder products, talc, and/or 4 talcum powder." 5 I just want -- I want to be 6 clear that there are none, correct? 7 A. Yes. 8 Q. You haven't written any 9 articles, papers, scientific or technical 10 publications on talc, correct? 11 A. Yes, I have not. 12 Q. All right. If you take a 13 look at Question 8. And that's all 14 documents concerning any research that 15 you've undertaken that relates to or 16 concerns talcum powder products or talc, 17 regardless of the outcome of the 18 research. 19 And then there's an answer. 20 But I want to be clear, that you haven't 21 done any research on talc, correct? 22 A. I have not done any 23 laboratory research. I have not done any 24 epidemiological research on talc.</p>	<p>1 You haven't had any communication, phone, 2 in person, any kind of oral 3 communication, written communication, 4 e-mail, et cetera, with any of the other 5 experts in the case? 6 A. Yes, that's correct. 7 Q. Question 10, "All scientific 8 or technical publications authored in 9 whole or in part by you which discuss 10 talcum powder products." And I just want 11 to be clear. The answer to that is there 12 are none, correct? 13 A. Yes, that's correct. 14 Q. If you go to Question 14. 15 The question is, "Documents related to 16 communications with employees or 17 representatives of any government, 18 regulatory, or trade organization and/or 19 agency which discusses talcum powder 20 products, talc, and/or talcum powder. 21 Such entities include without limitation 22 the Center For Regulatory Effectiveness," 23 and then it goes onto list about 10 or 12 24 different organizations.</p>

5 (Pages 14 to 17)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 18</p> <p>1 Do you see that?</p> <p>2 A. Yes, I do.</p> <p>3 Q. Okay. First of all, are you</p> <p>4 familiar with the Center For Regulatory</p> <p>5 Effectiveness?</p> <p>6 A. No.</p> <p>7 Q. Are you familiar with the</p> <p>8 Cosmetic Ingredient Review?</p> <p>9 A. I read some of their</p> <p>10 documents.</p> <p>11 Q. Do you know what Health</p> <p>12 Canada is?</p> <p>13 A. Yes.</p> <p>14 Q. Do you know what Industrial</p> <p>15 Mineral Associations of North America is?</p> <p>16 A. No. I can guess.</p> <p>17 Q. Do you know what the</p> <p>18 International Agency for Research on</p> <p>19 Cancer is?</p> <p>20 A. Yes.</p> <p>21 Q. Okay. Have you ever</p> <p>22 participated as a panel member for IARC?</p> <p>23 A. I have never been a panel</p> <p>24 member.</p>	<p style="text-align: right;">Page 20</p> <p>1 Personal Care Products Council, correct?</p> <p>2 A. That's my understanding.</p> <p>3 Q. All right. Have you ever</p> <p>4 had any contact whatsoever with the</p> <p>5 Personal Care Products Council before</p> <p>6 this litigation?</p> <p>7 A. I don't think I ever heard</p> <p>8 of the name before. I don't think I even</p> <p>9 heard the name before.</p> <p>10 Q. Do you know what they do?</p> <p>11 A. Not really.</p> <p>12 Q. So if you just take a look</p> <p>13 at these various organizations, A through</p> <p>14 P.</p> <p>15 A. Yes.</p> <p>16 Q. Is it -- is it correct that</p> <p>17 you have not had any communications of</p> <p>18 any kinds with any of these organizations</p> <p>19 as it relates to talc?</p> <p>20 A. Yes, that's correct.</p> <p>21 Q. Question 15 is, "All</p> <p>22 communications with any employees,</p> <p>23 editors, editorial boards, review boards,</p> <p>24 agents, liaisons, or affiliates of any</p>
<p style="text-align: right;">Page 19</p> <p>1 Q. Have you ever attended an</p> <p>2 IARC meeting?</p> <p>3 A. I have attended WHO</p> <p>4 meetings, but I don't know whether they</p> <p>5 were specifically IARC. I don't think</p> <p>6 so.</p> <p>7 Q. Do you read the IARC</p> <p>8 publications?</p> <p>9 A. Of course.</p> <p>10 Q. Have you ever participated</p> <p>11 in any way with the -- on behalf of the</p> <p>12 National Cancer Institute?</p> <p>13 A. I published in JNCI. I</p> <p>14 don't know whether some committees that</p> <p>15 I've been on were affiliated with NCI.</p> <p>16 Q. What kind of committees?</p> <p>17 A. There were some regulatory,</p> <p>18 having to do with exposure limits, and I</p> <p>19 think NCI was a participant.</p> <p>20 Q. Okay. And exposure limits,</p> <p>21 was that in the occupational area?</p> <p>22 A. Environmental.</p> <p>23 Q. Okay. Now, you're -- you</p> <p>24 are here as an expert on behalf of</p>	<p style="text-align: right;">Page 21</p> <p>1 academic or other published journal</p> <p>2 regarding talc, talcum powder products,</p> <p>3 ovarian cancer, asbestos, or any</p> <p>4 combination thereof."</p> <p>5 And I just want to be clear</p> <p>6 that your answers that you haven't had</p> <p>7 any contact with any such boards,</p> <p>8 correct?</p> <p>9 A. Yes, that's correct.</p> <p>10 Q. And anybody at any</p> <p>11 publications that may have written on</p> <p>12 talc or talc causing ovarian cancer?</p> <p>13 A. Your question is unclear to</p> <p>14 me. Are you asking me whether I've ever</p> <p>15 communicated to editorial folks at</p> <p>16 journals that have published on talc, or</p> <p>17 have I communicated about talc with such</p> <p>18 people?</p> <p>19 Q. Okay. About talc.</p> <p>20 A. No, I have not.</p> <p>21 Q. Okay. And you haven't</p> <p>22 written any letters to an editor</p> <p>23 concerning talc?</p> <p>24 A. I don't believe I have.</p>

6 (Pages 18 to 21)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 22</p> <p>1 Q. And no publication has</p> <p>2 contacted you to get your thoughts on the</p> <p>3 association between talc and ovarian</p> <p>4 cancer; is that correct?</p> <p>5 A. No.</p> <p>6 Q. Is that correct?</p> <p>7 A. No -- yes, it's correct.</p> <p>8 No, I have not.</p> <p>9 Q. Okay. Question 17. It</p> <p>10 says, "All prior court orders directly or</p> <p>11 indirectly ruling on, deciding, or</p> <p>12 otherwise adjudicating your ability to</p> <p>13 testify in any prior" -- "any prior</p> <p>14 litigation regarding any subject matter."</p> <p>15 Okay. Let me explain to you</p> <p>16 a little bit of the basis of that</p> <p>17 question -- that question --</p> <p>18 A. Thank you.</p> <p>19 Q. -- and my question here.</p> <p>20 Do you understand that</p> <p>21 probably sometime over the summer a court</p> <p>22 is going to read the reports and hear</p> <p>23 testimony from experts on both sides of</p> <p>24 this case? Were you aware of that?</p>	<p style="text-align: right;">Page 24</p> <p>1 Question 17, refers to whether or not in</p> <p>2 any prior cases your testimony, your</p> <p>3 opinions, your reports, were subject to a</p> <p>4 Daubert ruling before. Do you know one</p> <p>5 way or the other, whether or not they</p> <p>6 were?</p> <p>7 A. I do not know one way or</p> <p>8 another.</p> <p>9 Q. Have you ever been involved</p> <p>10 in a case as an expert where the lawyer</p> <p>11 who retained you said for whatever</p> <p>12 reason, a court has determined you can't</p> <p>13 testify?</p> <p>14 A. I have never had such a</p> <p>15 thing happen.</p> <p>16 Q. Okay. Take a look at</p> <p>17 Question 18. Says, "All documents</p> <p>18 related to research, experiments,</p> <p>19 testing, or any other study that's been</p> <p>20 done or is planned to be done by you, at</p> <p>21 your request or upon which you may rely</p> <p>22 in this talcum powder litigation which</p> <p>23 relates to talcum powder products, talc,</p> <p>24 and/or talcum powder."</p>
<p style="text-align: right;">Page 23</p> <p>1 A. I think I was aware of that.</p> <p>2 Q. Okay. And do you know what</p> <p>3 a Daubert hearing is?</p> <p>4 A. I do.</p> <p>5 Q. All right. And so you</p> <p>6 generally understand that a Daubert</p> <p>7 hearing is for a time when a court will</p> <p>8 make a ruling to determine whether or not</p> <p>9 an expert can testify before a jury, is</p> <p>10 that your general understanding of what a</p> <p>11 Daubert hearing is?</p> <p>12 A. Generally. I have -- I have</p> <p>13 a more specific idea, but yes.</p> <p>14 Q. Okay. And so the defendants</p> <p>15 will be filing Daubert motions to exclude</p> <p>16 certain or all of our experts and we will</p> <p>17 be doing the same with respect to their</p> <p>18 experts. Do you understand that?</p> <p>19 A. Yes.</p> <p>20 Q. All right. And then the</p> <p>21 court will be ruling on that. Do you</p> <p>22 understand that?</p> <p>23 A. Yes.</p> <p>24 Q. And so, this question,</p>	<p style="text-align: right;">Page 25</p> <p>1 And your -- I just want to</p> <p>2 be clear. Because at least to me, the</p> <p>3 answer to this is -- is not clear, is</p> <p>4 that there are -- there was no such</p> <p>5 research, correct?</p> <p>6 A. Yes, there was no such</p> <p>7 research.</p> <p>8 Q. And you didn't do any</p> <p>9 testing as it relates to talc?</p> <p>10 A. Define testing.</p> <p>11 Q. Well, you didn't do -- you</p> <p>12 didn't do any studies as it relates to</p> <p>13 talc?</p> <p>14 A. I've done a great deal of</p> <p>15 literature work related to talc.</p> <p>16 Q. Okay. By -- by literature</p> <p>17 work, you mean you've read studies?</p> <p>18 A. Yes. In a systematic way.</p> <p>19 Q. All right. You -- you</p> <p>20 haven't, at least in your report, and</p> <p>21 we're going to go through your report in</p> <p>22 detail, you haven't -- you have -- you</p> <p>23 have identified in your -- at least your</p> <p>24 reference list, and we're going to go</p>

7 (Pages 22 to 25)

Jonathan Borak, M.D., DABT

Page 26	Page 28
<p>1 through all this. You have identified</p> <p>2 50 -- 50 different journal articles,</p> <p>3 studies, et cetera, as things that you</p> <p>4 referred to in your report, correct?</p> <p>5 A. I think that's probably</p> <p>6 about right, yes.</p> <p>7 Q. Okay. And you've -- you've</p> <p>8 identified by number the 50 various</p> <p>9 studies, articles, et cetera, in the body</p> <p>10 of your 13-page report, correct?</p> <p>11 A. I -- I have a certain number</p> <p>12 of references cited in my report, that's</p> <p>13 correct.</p> <p>14 Q. All right. And we'll --</p> <p>15 again we'll go through that. But nine of</p> <p>16 those references are to either</p> <p>17 case-control studies or cohort studies?</p> <p>18 A. That may be. I don't know</p> <p>19 the number.</p> <p>20 Q. Okay. Again, we're going</p> <p>21 to -- we're going to go through this in</p> <p>22 greater detail as the -- as the day goes</p> <p>23 on.</p> <p>24 With respect to those nine</p>	<p>1 THE WITNESS: I don't know</p> <p>2 if the word all is appropriate.</p> <p>3 I've read them -- a lot of them.</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. All right. And you know</p> <p>6 that in each and every one of those</p> <p>7 epidemiology reports that were produced</p> <p>8 on behalf of the plaintiffs, that they --</p> <p>9 there are literally charts within the</p> <p>10 body of their reports in which they</p> <p>11 analyze various data from the</p> <p>12 case-control studies, the more than</p> <p>13 30 case-control studies. And that --</p> <p>14 that's what I mean by analyze the data.</p> <p>15 Do you understand that?</p> <p>16 A. You mean --</p> <p>17 MR. HEGARTY: Objection.</p> <p>18 MR. LOCKE: Same objection,</p> <p>19 form.</p> <p>20 THE WITNESS: You mean did I</p> <p>21 make charts from the data from the</p> <p>22 reports?</p> <p>23 BY MR. GOLOMB:</p> <p>24 Q. Well, that's part of the</p>
Page 27	Page 29
<p>1 case studies and -- and/or cohort</p> <p>2 studies, while you -- you have</p> <p>3 extrapolated certain paragraphs and</p> <p>4 referred to them in your reports, you</p> <p>5 don't -- you didn't do anything to</p> <p>6 analyze the underlying data in those</p> <p>7 case-control and/or cohort studies,</p> <p>8 correct?</p> <p>9 MR. LOCKE: Objection.</p> <p>10 THE WITNESS: What do you</p> <p>11 mean by analyze?</p> <p>12 BY MR. GOLOMB:</p> <p>13 Q. Well, you -- you know that</p> <p>14 when you -- you've reviewed the -- you</p> <p>15 reviewed all the case-control studies in</p> <p>16 this case, correct?</p> <p>17 A. Yes, that's correct.</p> <p>18 Q. Okay. And you've also seen</p> <p>19 the various expert reports from the</p> <p>20 various epidemiologists who have authored</p> <p>21 reports and have testified or will be</p> <p>22 testifying in this case much the same way</p> <p>23 you're testifying today, correct?</p> <p>24 MR. LOCKE: Objection.</p>	<p>1 question. But why don't you answer that</p> <p>2 part?</p> <p>3 A. Yes, I had to summarize some</p> <p>4 of the data. So to see it, I made charts</p> <p>5 for myself to look at.</p> <p>6 Q. You made charts on the data,</p> <p>7 but you didn't include them in the</p> <p>8 report?</p> <p>9 A. They were not part of the</p> <p>10 report. They were just so that I could</p> <p>11 keep track. My report had to do with who</p> <p>12 said what and when.</p> <p>13 Q. Okay.</p> <p>14 A. I was not asked to analyze</p> <p>15 those individual studies.</p> <p>16 Q. Okay. And, in fact, your --</p> <p>17 your opinion in this case is limited to</p> <p>18 whether or not the scientific data out</p> <p>19 there, the scientific reports, whether or</p> <p>20 not it answers the question whether or</p> <p>21 not there is an association between talc</p> <p>22 and ovarian cancer, correct?</p> <p>23 MR. LOCKE: Objection.</p> <p>24 MR. HEGARTY: Objection to</p>

8 (Pages 26 to 29)

Jonathan Borak, M.D., DABT

Page 30	Page 32
<p>1 the form.</p> <p>2 THE WITNESS: I -- I</p> <p>3 would -- if you would give me a</p> <p>4 copy of my report, I'll read what</p> <p>5 I said I had done just to be</p> <p>6 clear.</p> <p>7 BY MR. GOLOMB:</p> <p>8 Q. Well -- well, we'll get to</p> <p>9 your report. When -- when was the last</p> <p>10 time you read your report?</p> <p>11 A. Last night.</p> <p>12 Q. Okay. And so are you -- are</p> <p>13 you, based on your review of your report</p> <p>14 last night, are you unable to answer my</p> <p>15 question?</p> <p>16 A. The wording was clear in my</p> <p>17 report, and I don't want to confuse</p> <p>18 things. So if you would like me to</p> <p>19 respond to what I did in my report, I</p> <p>20 will read it to you.</p> <p>21 Q. Okay. Well, what -- what</p> <p>22 were you asked to do in this case?</p> <p>23 A. I was asked to determine who</p> <p>24 had said what and when regarding the</p>	<p>1 BY MR. GOLOMB:</p> <p>2 Q. So what you have in front of</p> <p>3 you is Exhibit 2, which is your</p> <p>4 curriculum vitae, correct?</p> <p>5 A. Yes.</p> <p>6 Q. So as -- if I understand</p> <p>7 correctly, you do not have a degree in</p> <p>8 epidemiology; is that correct?</p> <p>9 A. Yes, that's correct.</p> <p>10 Q. So your -- so when -- when</p> <p>11 we refer to you as Dr. Borak, you are --</p> <p>12 you are literally a medical doctor, a --</p> <p>13 an internist, correct?</p> <p>14 A. I'm an internist,</p> <p>15 occupational physician, toxicologist, and</p> <p>16 I spent 20 years as a professor of</p> <p>17 epidemiology at Yale.</p> <p>18 Q. It's unclear to me from</p> <p>19 your -- your CV of how you actually</p> <p>20 became an epidemiologist. How -- at</p> <p>21 what -- first of all, at what point in</p> <p>22 your career did you become an</p> <p>23 epidemiologist?</p> <p>24 A. I studied epidemiology</p>
Page 31	Page 33
<p>1 association between talc and ovarian</p> <p>2 cancer.</p> <p>3 Q. Okay. And so you -- you</p> <p>4 weren't asked to express an opinion on</p> <p>5 the ultimate question of whether or not</p> <p>6 talc causes ovarian cancer, correct?</p> <p>7 MR. HEGARTY: Objection.</p> <p>8 MR. LOCKE: Objection.</p> <p>9 THE WITNESS: I -- I was not</p> <p>10 asked specifically to opine on</p> <p>11 whether talc causes ovarian</p> <p>12 cancer.</p> <p>13 BY MR. GOLOMB:</p> <p>14 Q. Right. Okay. So let's take</p> <p>15 a look at Exhibit 2, please.</p> <p>16 (Document marked for</p> <p>17 identification as Exhibit</p> <p>18 Borak-2.)</p> <p>19 MR. GOLOMB: Tom, you are</p> <p>20 going to keep track of the</p> <p>21 originals?</p> <p>22 MR. LOCKE: Yes. Put them</p> <p>23 right here.</p> <p>24 MR. GOLOMB: Okay. Thanks.</p>	<p>1 beginning in 1974 at McGill as part of a</p> <p>2 Robert Wood Johnson funded postdoctoral</p> <p>3 program in which I was a member.</p> <p>4 Q. All right. So you -- you</p> <p>5 graduated from Amherst in 1968, correct?</p> <p>6 A. That's right.</p> <p>7 Q. And what was your degree in?</p> <p>8 A. Economics.</p> <p>9 Q. And you then, with your</p> <p>10 economic degree in 1968, you went to</p> <p>11 medical school?</p> <p>12 A. That's correct.</p> <p>13 Q. And that was at NYU?</p> <p>14 A. Yes.</p> <p>15 Q. And you graduated from NYU</p> <p>16 in 1972?</p> <p>17 A. Yes.</p> <p>18 Q. Where did you do your</p> <p>19 residency?</p> <p>20 A. At Royal Victoria Hospital</p> <p>21 in Montreal.</p> <p>22 Q. Why did you go to Montreal?</p> <p>23 A. Beautiful city.</p> <p>24 Q. I agree. Except in January</p>

Jonathan Borak, M.D., DABT

Page 34	Page 36
<p>1 when it's 20 below zero.</p> <p>2 A. If you're a skier, it's not</p> <p>3 too bad.</p> <p>4 Q. When you're taking a</p> <p>5 deposition till 11:30 at night, and it's</p> <p>6 20 below, it's pretty bad.</p> <p>7 A. You have my empathy.</p> <p>8 Q. And then what was your</p> <p>9 residency in?</p> <p>10 A. Internal medicine.</p> <p>11 Q. And when did you complete</p> <p>12 your residency?</p> <p>13 A. Well, I completed my</p> <p>14 training at McGill in 1977.</p> <p>15 Q. And --</p> <p>16 A. I did another year</p> <p>17 postdoctoral training at Yale the</p> <p>18 following year.</p> <p>19 Q. In what?</p> <p>20 A. Well, that was in</p> <p>21 gastroenterology, funded as a health</p> <p>22 physician economist.</p> <p>23 Q. And that was completed when?</p> <p>24 A. '78.</p>	<p>1 Q. Well, when you completed --</p> <p>2 when you completed this training in 1976,</p> <p>3 what did you do?</p> <p>4 A. I didn't finish -- in 1977 I</p> <p>5 left McGill.</p> <p>6 Q. What did you do?</p> <p>7 A. I came to Yale. And I spent</p> <p>8 a year, I just described to you.</p> <p>9 Q. I'm sorry?</p> <p>10 A. I spent a year, as I just</p> <p>11 described it to you.</p> <p>12 Q. And after -- when you</p> <p>13 completed that year, what did you do?</p> <p>14 A. I found myself at that point</p> <p>15 with a graduate student significant</p> <p>16 other, subsequently my wife, and I needed</p> <p>17 to pay the rent, so I took a job in</p> <p>18 emergency medicine.</p> <p>19 And my economics came in, in</p> <p>20 the sense of management skills and</p> <p>21 organizational thought, and I became the</p> <p>22 chair of a large emergency medicine</p> <p>23 department in New Haven, Connecticut.</p> <p>24 And I held that job as the director and</p>
Page 35	Page 37
<p>1 Q. What is a health physician</p> <p>2 economist?</p> <p>3 A. Which part are you asking</p> <p>4 about? I'm a physician.</p> <p>5 Q. Yeah.</p> <p>6 A. I was trained as an</p> <p>7 economist. I had gone to graduate school</p> <p>8 in economics at McGill, and I was doing</p> <p>9 health economics.</p> <p>10 Q. Health -- okay. And what is</p> <p>11 that?</p> <p>12 A. The specifics, is that what</p> <p>13 you're asking me?</p> <p>14 Q. Yes.</p> <p>15 A. I was concerned with the</p> <p>16 cost effectiveness of several different</p> <p>17 approaches to diagnostic challenges in</p> <p>18 clinical medicine.</p> <p>19 Q. And with that as a</p> <p>20 background, did you use that in your</p> <p>21 employment?</p> <p>22 A. Well, the answer is I used a</p> <p>23 lot of my background in my employment.</p> <p>24 Can you be more specific?</p>	<p>1 as a clinician for about eight or</p> <p>2 ten years.</p> <p>3 Q. For how many years?</p> <p>4 A. I said eight or ten, but I'm</p> <p>5 looking to see the listing.</p> <p>6 Q. Well, if you look at Page 3</p> <p>7 of your CV.</p> <p>8 A. Thank you. Through '88.</p> <p>9 Q. That was as an associate</p> <p>10 attending physician, department of</p> <p>11 ambulatory services, Hospital of Saint</p> <p>12 Raphael in New Haven?</p> <p>13 A. That's right.</p> <p>14 Q. And your CV identifies a</p> <p>15 couple different jobs during a part of</p> <p>16 that same period of time.</p> <p>17 A. Yes.</p> <p>18 Q. So were you doing emergency</p> <p>19 medicine at more than one facility?</p> <p>20 A. No. I -- from the period of</p> <p>21 '78 through '79, I worked in</p> <p>22 Massachusetts for a group, and I was</p> <p>23 part-time at Saint Raphael. And then</p> <p>24 went there full-time and stayed there.</p>

10 (Pages 34 to 37)

Page 38	Page 40
<p>1 Q. So -- and had you had any</p> <p>2 training in epidemiology up until that</p> <p>3 point?</p> <p>4 A. Yes. I had been in -- in</p> <p>5 graduate school classes in epidemiology.</p> <p>6 Q. Okay. And your -- your CV,</p> <p>7 and correct me if I'm wrong, identifies</p> <p>8 for the first time epidemiology in terms</p> <p>9 of your professional experience, it says</p> <p>10 associate clinical professor of</p> <p>11 epidemiology beginning in 1999 through</p> <p>12 2007.</p> <p>13 Is that the first time that</p> <p>14 you had a professional title as an</p> <p>15 epidemiologist?</p> <p>16 A. Yes, that's correct.</p> <p>17 Q. All right. And how did you,</p> <p>18 other than the classes that you took in</p> <p>19 graduate study back in the '70s, how did</p> <p>20 you become an epidemiologist 20-plus</p> <p>21 years later?</p> <p>22 A. On the basis of the work</p> <p>23 that I had been doing, I was invited to</p> <p>24 join the faculty and teach.</p>	<p>1 epidemiologist?</p> <p>2 A. I took two sets of boards,</p> <p>3 in occupational medicine and in</p> <p>4 toxicology, both of which subsume</p> <p>5 epidemiology concepts and practice.</p> <p>6 Passed both of those. I did not take a</p> <p>7 course degree in epidemiology.</p> <p>8 Q. Are there -- are there</p> <p>9 certifications specifically in</p> <p>10 epidemiology?</p> <p>11 A. Probably. I can't tell you</p> <p>12 for sure.</p> <p>13 Q. But you don't have them, if</p> <p>14 they exist, correct?</p> <p>15 MR. LOCKE: Objection.</p> <p>16 THE WITNESS: I've already</p> <p>17 said that epidemiology is part of</p> <p>18 the requirements and occupational</p> <p>19 medicine is part of requirements</p> <p>20 to take the boards or to pass the</p> <p>21 boards in toxicology. But I don't</p> <p>22 have a specific diploma on my wall</p> <p>23 that says epidemiology.</p> <p>24 BY MR. GOLOMB:</p>
Page 39	Page 41
<p>1 Q. What work had you been</p> <p>2 doing?</p> <p>3 A. I had been working in the</p> <p>4 area of risk assessment and I'd been</p> <p>5 doing epidemiological-type studies, not</p> <p>6 as though one buys a ticket to get on the</p> <p>7 train.</p> <p>8 Q. Does one get a degree in</p> <p>9 epidemiology?</p> <p>10 A. Some do.</p> <p>11 Q. Okay. Do people have</p> <p>12 masters in epidemiology?</p> <p>13 A. Some do.</p> <p>14 Q. Do people have Ph.D.s in</p> <p>15 epidemiology?</p> <p>16 A. Some do.</p> <p>17 Q. Do people go to work</p> <p>18 professionally after getting those</p> <p>19 various degrees, go to work as an</p> <p>20 epidemiologist?</p> <p>21 A. Some do.</p> <p>22 Q. And I take it you took,</p> <p>23 between 1978 and 1999, you took a</p> <p>24 different path to become an</p>	<p>1 Q. Okay. So to be -- to be</p> <p>2 clear, there are specific certifications</p> <p>3 in epidemiology, correct?</p> <p>4 A. Yes, I think so.</p> <p>5 Q. All right. And you have --</p> <p>6 you have indicated in fact that you have</p> <p>7 read, by virtue of your report, you have</p> <p>8 read various epidemiology reports in this</p> <p>9 case, correct?</p> <p>10 A. Yes.</p> <p>11 Q. And they include, as an</p> <p>12 example, Dr. Jack Siemiatycki?</p> <p>13 A. Yes.</p> <p>14 Q. Did you know who</p> <p>15 Dr. Siemiatycki was before you read his</p> <p>16 report?</p> <p>17 A. Yes.</p> <p>18 Q. He is a world-renowned</p> <p>19 epidemiologist. Would you agree with</p> <p>20 that?</p> <p>21 MR. HEGARTY: Objection.</p> <p>22 MR. LOCKE: Objection.</p> <p>23 THE WITNESS: He is well</p> <p>24 published.</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 42</p> <p>1 BY MR. GOLOMB:</p> <p>2 Q. And so if you read his</p> <p>3 deposition, you know that he -- he has a</p> <p>4 master's and a doctoral degree and is</p> <p>5 specifically certified in epidemiology,</p> <p>6 correct?</p> <p>7 A. I am not surprised, but I</p> <p>8 don't remember.</p> <p>9 Q. All right. And you also</p> <p>10 read the testimony of Dr. Smith-Bindman?</p> <p>11 A. I'm sorry?</p> <p>12 Q. You read the testimony of</p> <p>13 Dr. Smith-Bindman?</p> <p>14 A. Very possibly. It's</p> <p>15 probably on my list. I don't recall it.</p> <p>16 Q. Okay. And like</p> <p>17 Dr. Siemiatycki, she also has a specific</p> <p>18 certification and a Ph.D. in</p> <p>19 epidemiology. Do you recall reading that</p> <p>20 testimony?</p> <p>21 A. I don't recall. I'm sorry.</p> <p>22 Q. And do you know who</p> <p>23 Dr. Sonal Singh is?</p> <p>24 A. I recall the name.</p>	<p style="text-align: right;">Page 44</p> <p>1 before Congress this year on the</p> <p>2 association between talc and ovarian</p> <p>3 cancer?</p> <p>4 MR. HEGARTY: Objection.</p> <p>5 MR. LOCKE: Objection.</p> <p>6 THE WITNESS: I -- I don't</p> <p>7 specifically recall when.</p> <p>8 BY MR. GOLOMB:</p> <p>9 Q. Okay. So your -- your CV,</p> <p>10 it says between 1999 and 2007 that you</p> <p>11 were an associate clinical professor of</p> <p>12 epidemiologist -- epidemiology and public</p> <p>13 health at Yale University. And then from</p> <p>14 2017 to -- I'm sorry, 2007 to 2017 it</p> <p>15 says you're a clinical professor of</p> <p>16 epidemiology.</p> <p>17 What -- what's the</p> <p>18 difference between associate clinical</p> <p>19 professor and clinical professor from</p> <p>20 a -- from a practical standpoint?</p> <p>21 A. It's a promotion.</p> <p>22 Q. Okay. And then it -- it</p> <p>23 goes to, rather than saying current like</p> <p>24 it does for -- it says adjunct professor</p>
<p style="text-align: right;">Page 43</p> <p>1 Q. All right. You've indicated</p> <p>2 that you've read his testimony as well?</p> <p>3 A. I think I have.</p> <p>4 Q. Okay. And you know that</p> <p>5 Dr. Singh also has a Ph.D. in</p> <p>6 epidemiology and is specifically</p> <p>7 certified in epidemiology, correct?</p> <p>8 A. I -- I don't have any reason</p> <p>9 to challenge that. But I don't know that</p> <p>10 to be true.</p> <p>11 Q. Okay. Do you know who</p> <p>12 Dr. Ann McTiernan is?</p> <p>13 A. I have read her report.</p> <p>14 Q. Okay. Did you know who</p> <p>15 Dr. McTiernan was prior to -- before you</p> <p>16 reading her report and/or testimony?</p> <p>17 A. No.</p> <p>18 Q. Did you read the</p> <p>19 congressional testimony that</p> <p>20 Dr. McTiernan gave before Congress?</p> <p>21 A. No, I think I've read</p> <p>22 reference to it, but...</p> <p>23 Q. Okay. So you were aware</p> <p>24 that Dr. McTiernan was asked to testify</p>	<p style="text-align: right;">Page 45</p> <p>1 of medicine 2003 to current at Johns</p> <p>2 Hopkins. It also says 2008 to current,</p> <p>3 clinical professor of medicine. Your</p> <p>4 stint as a clinical professor of</p> <p>5 epidemiology ends in 2017?</p> <p>6 A. That's correct.</p> <p>7 Q. All right. So you're --</p> <p>8 you're no longer a professor of</p> <p>9 epidemiology?</p> <p>10 A. I am not that now.</p> <p>11 Q. Why is that?</p> <p>12 A. Chose not to. I did not</p> <p>13 like working with a new chairman of the</p> <p>14 department and I didn't need it.</p> <p>15 Q. All right. From a practical</p> <p>16 standpoint, what -- what were you doing</p> <p>17 between 2007 to 2017 as it relates</p> <p>18 specifically to epidemiology?</p> <p>19 A. I taught a number of</p> <p>20 courses.</p> <p>21 Q. Well, as a clinical</p> <p>22 professor, how many courses total,</p> <p>23 whether dealing with epidemiology or</p> <p>24 otherwise?</p>

12 (Pages 42 to 45)

<p style="text-align: right;">Page 46</p> <p>1 A. I -- I have listed all of my 2 courses on my CV -- 3 Q. Well -- 4 A. -- if you turn the page it's 5 there with the -- with the years and the 6 names and the course numbers. 7 Q. Okay. But I'm asking you 8 without reference to the CV, during any 9 given semester, how many courses do you 10 teach? 11 A. I -- 12 MR. LOCKE: Objection. 13 THE WITNESS: Up until 2017 14 I taught a full course every 15 semester, and then lectured in a 16 number of other courses. 17 BY MR. GOLOMB: 18 Q. When you say full course, a 19 single course? 20 A. Foundations of toxicology. 21 Foundation of risk assessment. Both of 22 which were required courses in the School 23 of Public Health and listed in other 24 schools at Yale. And then I lectured in</p>	<p style="text-align: right;">Page 48</p> <p>1 Q. Okay. And so am I correct 2 then, given that distinction and 3 listening carefully to what you've been 4 saying over the last few minutes, is that 5 you -- you never specifically taught a 6 course in epidemiology? 7 MR. LOCKE: Objection. 8 THE WITNESS: I was never 9 the course director of a course 10 listed as epidemiology. 11 BY MR. GOLOMB: 12 Q. Right. You have lectured 13 from time to time -- 14 A. Regularly. 15 Q. -- in -- in an area of 16 epidemiology? 17 A. Yes, regularly. Not from 18 time to time consistently, but not every 19 week. Yes. 20 Q. And -- and you have never -- 21 you have never taught a course or -- or 22 lectured in a course that in any way had 23 anything to do with the association of 24 talc and ovarian cancer, correct?</p>
<p style="text-align: right;">Page 47</p> <p>1 a number of courses in epidemiology and 2 public health. 3 Q. Okay. And so when -- 4 given -- given your -- the distinction 5 you're making between courses and 6 lecture -- well, why don't you tell me, 7 what -- what's the difference? 8 A. One of them I was the course 9 director. And the courses that I taught 10 when I referred to it that way, I was 11 responsible for every minute of the 12 course and taught most of the courses and 13 read most of the papers and evaluated 14 most of the students and did not use 15 teaching assistants. 16 In other cases I'm called 17 upon because of my expertise to 18 participate in courses that are more 19 kaleidoscopic if you would. 20 Q. Okay. And -- and the latter 21 is, those are the lectures you gave? 22 A. That's right. If I was not 23 responsible for the course, I'm not 24 referring to it that way.</p>	<p style="text-align: right;">Page 49</p> <p>1 A. I have never, on something 2 that was devoted to talc. It may have 3 come up in some context casually. But 4 not systematically. 5 Q. And out -- outside of 6 your -- your teachings at Yale, I assume 7 that you have, on a number of occasions, 8 been asked to lecture outside of Yale to 9 different groups or organizations, 10 correct? 11 A. Yes, that's correct. 12 Q. And you've never lectured on 13 talc, ovarian cancer, or the association 14 of talc and ovarian cancer; is that 15 correct? 16 A. Yes, that's correct. 17 Q. Now, you -- on Page 2 of 18 your CV, you list your -- your 19 professional certifications. Do you see 20 that, at the bottom of the page? 21 A. Yes, sir. 22 Q. And you identify your 23 various fellowships and where you are a 24 diplomat, including the college of</p>

Jonathan Borak, M.D., DABT

Page 50	Page 52
<p>1 physicians, the occupational 2 environmental medicines, toxicology, 3 internal medicine, preventive medicine, 4 your license with the medical council of 5 Canada. 6 You have no professional 7 certification whatsoever specifically 8 related to epidemiology; is that correct? 9 MR. LOCKE: Objection. 10 THE WITNESS: Yes, sir. 11 You've asked that before. But 12 yes, that's true. 13 BY MR. GOLOMB: 14 Q. Okay. And you are not a 15 member of the American College of 16 Epidemiologists; is that correct? 17 A. Yes, that's correct. 18 Q. You are not a member of the 19 American Association of Cancer Research? 20 A. Yes, that's correct. 21 Q. You are not a member of the 22 International Epidemiology Association? 23 A. That's correct. 24 Q. You are not a member of the</p>	<p>1 Q. When did you -- when did you 2 last have an office at Yale? 3 A. I have never had an office 4 at Yale. I was offered shared space but 5 never took it. 6 Q. Why is that? 7 A. I didn't need it. 8 Q. How did -- do -- do students 9 come to you once in a -- once in a while 10 to talk about their class work and what's 11 going on in class? 12 A. Well, not just once in a 13 while, but yes, they would come to me or 14 sometimes I would meet them on the 15 campus. 16 Q. Okay. So -- 17 A. That is to say, I would meet 18 them in the School of Public Health, 19 which is about three and a half blocks 20 from my office. 21 Q. Okay. And your -- your 22 office for Jonathan Borak & Company is 23 where? 24 A. New Haven. 234 Church</p>
Page 51	Page 53
<p>1 Society For Epidemiological Research? 2 A. Yes, that's correct. 3 Q. You are not a member of the 4 International Society of Environmental 5 Epidemiologists? 6 A. Yes, that's correct. 7 Q. Do you read any of their -- 8 their journals or periodicals? 9 A. Yes. 10 Q. You just chose not to be a 11 member? 12 A. Yes. 13 Q. You have an office at Yale? 14 A. No. 15 Q. Did you at one point have an 16 office at Yale? 17 A. There was a shared office 18 floor, but my private office is on the 19 campus, so there was no reason to make -- 20 take advantage of that. 21 Q. Your -- when you say your 22 private office, is that Jonathan Borak & 23 Company? 24 A. That's correct.</p>	<p>1 Street, New Haven. 2 Q. And do you have employees? 3 A. Yes. 4 Q. How many employees? 5 A. At the moment, four. At the 6 moment, four. 7 Q. All right. And in your 8 office space, do you have a private 9 office? 10 A. Yes. 11 Q. And in your -- in your 12 private office, are there -- do you have 13 -- are there books? 14 A. Yes. 15 Q. And are there journals, or 16 periodicals that you read? 17 A. Yes, although we have turned 18 to digital format so that I don't 19 actually retain the hard copies. I've 20 got a lot of PDFs, but that's sort of the 21 same. 22 Q. And what kind of books, like 23 by title, what books would we find in 24 your office?</p>

14 (Pages 50 to 53)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 54</p> <p>1 A. It's too many for me to 2 begin that. Why don't you ask me a more 3 specific question. Do you have this? Do 4 you have that? I will try to answer you. 5 Q. Do you subscribe to the 6 American Journal of Epidemiology? 7 A. No, I look at it online 8 through the Yale library. 9 Q. Do you subscribe to the 10 International Journal of Epidemiology? 11 A. No. I read it online at the 12 Yale library. 13 Q. Do you subscribe to the 14 Journal of Clinical Epidemiology? 15 A. No. I sometimes look at it 16 on the Yale library. 17 Q. Do you subscribe to Clinical 18 Epidemiology? 19 A. No. I have occasionally 20 reviewed it directly online in the Yale 21 library. 22 Q. Do you subscribe to 23 Epidemiology? 24 A. I do not subscribe to it. I</p>	<p style="text-align: right;">Page 56</p> <p>1 A. He is a very smart man, and 2 he likes Borges, a writer whom I think 3 very highly of. We shared short stories 4 with one other. I think he's a very 5 bright guy. 6 Q. And are you familiar with 7 Dr. Rothman's writings on the hierarchy 8 or the weight of evidence in 9 epidemiology? 10 MR. HEGARTY: Objection. 11 MR. LOCKE: Objection. 12 THE WITNESS: I don't know 13 what you mean by am I familiar. 14 I've read some of his work on 15 that. 16 BY MR. GOLOMB: 17 Q. Okay. And is his view on 18 the hierarchy of evidence in epidemiology 19 consistent with your own view? 20 MR. LOCKE: Objection. 21 MR. HEGARTY: Objection. 22 THE WITNESS: Would you tell 23 me what it is specific that you're 24 asking me?</p>
<p style="text-align: right;">Page 55</p> <p>1 read it online in the Yale library. 2 Q. Do you subscribe to the 3 Journal of Epidemiology? 4 A. I do not subscribe to it. I 5 read it when I need to online through the 6 Yale library. 7 Q. Do you subscribe to Cancer 8 Epidemiology? 9 A. I do not subscribe to it. 10 When I need it, I read it online through 11 the Yale library. 12 Q. Do you know who Dr. Ken 13 Rothman is? 14 A. Yes. We're old friends. 15 Q. I'm sorry? 16 A. I said we are old friends. 17 Q. Okay. And would we find his 18 book on Modern Epidemiology in your 19 office? 20 A. At least two versions, maybe 21 three. 22 Q. Okay. So I -- am I correct 23 that you have high regard for 24 Dr. Rothman?</p>	<p style="text-align: right;">Page 57</p> <p>1 BY MR. GOLOMB: 2 Q. Well, do you know what his 3 view is on hierarchy of evidence? 4 A. Perhaps you can ask me a 5 more specific question. 6 Q. I don't think I can ask you 7 any more specifically than the question 8 that calls for a yes or no answer. And 9 that is, are you familiar with 10 Dr. Rothman's writings on the hierarchy 11 of evidence as it relates to 12 epidemiology? 13 A. I have read -- 14 MR. LOCKE: Objection. 15 MR. HEGARTY: Objection. 16 THE WITNESS: Excuse me. 17 I have read some of his 18 writings on that, but I'm not sure 19 what you have specifically in 20 mind. 21 BY MR. GOLOMB: 22 Q. Do you -- do you hold any -- 23 any position, like an editorial position, 24 with -- irrespective of whether or not it</p>

Jonathan Borak, M.D., DABT

Page 58	Page 60
<p>1 has to do with epidemiology or not, with 2 any journal? 3 A. Yes. 4 Q. What? 5 A. I'm on the editorial board 6 of the Journal of Occupational and 7 Environmental Health -- Medicine. I'm a 8 member of the editorial board of the 9 Journal of Occupational and Environmental 10 Health -- Hygiene. I'm on the editorial 11 board of Occupational Medicine. 12 Q. Okay. Is it fair to say 13 that your research interests, your 14 teaching interest, is more related to 15 occupational and environmental health 16 than it is to epidemiology? 17 MR. LOCKE: Objection. 18 THE WITNESS: No. I don't 19 think that's true. I am not 20 focused on that. 21 BY MR. GOLOMB: 22 Q. Not focused on? 23 A. Occupational health, as 24 you've just described it.</p>	<p>1 Q. And have you written any 2 books in epidemiology? 3 A. Not specifically with that 4 title, no. 5 Q. Have you written any book 6 chapters in epidemiology? 7 A. I have written book chapters 8 that dealt with the epidemiological 9 aspects of certain kinds of exposures, 10 but not specifically on epidemiology. 11 Q. Okay. And those -- those 12 chapters were more specifically related 13 to hazardous materials and the effects of 14 hazardous materials, correct? 15 A. More or less. Not -- not 16 exclusively. But generally. 17 Q. As an example, in just going 18 through your lists and doing some 19 independent research, you seem to have a 20 specific interest generally in 21 occupational/environmental health, but as 22 a subset of that in -- specifically in 23 beryllium exposure? 24 MR. LOCKE: Objection.</p>
Page 59	Page 61
<p>1 Q. You are or not? 2 A. I am not. I look at the 3 interface of epidemiology and toxicology 4 and its application to clinical practice. 5 Q. Well -- and -- well, let me 6 ask you. Have you ever had a clinical 7 practice as an internist? 8 A. Yes. But not in a number of 9 years. 10 Q. When did you have -- 11 A. It was years ago. I 12 spent -- the most recent time that I 13 supported myself as a full-time clinician 14 was in the late '80s, when I was running 15 a large inner city trauma center and saw 16 patients probably 60, 65 percent of my 17 time and did so for about eight years. 18 I've never had an office 19 practice in internal medicine since I 20 left Montreal. I had one there. 21 Q. And you left Montreal when? 22 A. In the late '70s. 23 Q. Have you written any books? 24 A. Yes.</p>	<p>1 BY MR. GOLOMB: 2 Q. Is that fair? 3 A. I have been involved with 4 the issue of beryllium for a number of 5 years, but it's not from the clinical 6 practice. We don't see much of it in New 7 Haven. 8 Q. And your -- you have written 9 some articles related to internal 10 medicine, correct? 11 A. Yes. 12 Q. You've written some articles 13 related to emergency medicine, correct? 14 A. Yes. 15 Q. You've written some articles 16 related to industrial accidents, correct? 17 A. Long ago, yes. 18 Q. You've written some articles 19 related, as you said, to beryllium 20 exposure, correct? 21 A. Well, that's one of the 22 toxicants I was interested in, yes. 23 Q. Okay. As best I can tell 24 from the list, and you can correct me if</p>

Jonathan Borak, M.D., DABT

Page 62	Page 64
<p>1 I'm wrong, from the list of articles 2 you've got beginning on Page 9 of your 3 CV, beginning -- it says books and 4 monographs. 5 Do you see that? 6 A. Yes. 7 Q. And then -- well, on Page 8 11, begins a list of journal articles. 9 And that list goes on for 14 pages. And 10 as best as I can tell, correct me if I'm 11 wrong, I can see two articles that are 12 specifically related to epidemiology. 13 The first is an article that 14 you wrote in 2004 entitled "Who is 15 Hispanic? Implications of 16 Epidemiological Research in the United 17 States." And that was an article that 18 you wrote for Environmental Health. And 19 the second one -- 20 A. No, sir. That was -- 21 Q. I'm sorry, for Epidemiology 22 Magazine. 23 A. Thank you. 24 Q. Right. And the second</p>	<p>1 papers, or at least two that had 2 to do with mortality disparities 3 in Appalachia looking at risk 4 factors. And that was an 5 epidemiological study, 6 specifically epidemiological, 7 using databases. 8 The papers that we've done 9 on methylmethacrylate had to do 10 with a specific chemical, but it 11 looked at the epidemiological 12 aspects of the reports to 13 determine those which were valid 14 and how to interpret them. 15 Seafood arsenic and the use 16 of -- the -- the beryllium -- 17 particularly the most recent one 18 on beryllium, which was a search 19 for a dose-response, a number of 20 these, all of them are steeped in 21 the concepts of epidemiology for 22 the purpose of interpretation and 23 understanding. 24 BY MR. GOLOMB:</p>
Page 63	Page 65
<p>1 article is -- that you wrote for 2 Environmental Health, which discussed 3 cancer for populations near a toxic waste 4 site. 5 A. There was such a paper, yes. 6 MR. HEGARTY: Objection. 7 BY MR. GOLOMB: 8 Q. Okay. There's -- I -- I 9 don't see any other articles that -- and 10 maybe you can help me out -- other than 11 those two articles that you've written 12 specifically on the issue of 13 epidemiology. 14 MR. LOCKE: Objection. 15 MR. HEGARTY: Objection. 16 THE WITNESS: There are 17 various epidemiological concepts 18 that are central to a great 19 number, or to any -- a number of 20 these various papers, ranging 21 from -- I -- I'm just looking at 22 the list. I'm looking at Page 15 23 right now. 24 So we wrote a number of</p>	<p>1 Q. The article on dose-response 2 in -- in beryllium that you mentioned, 3 there -- there is no dose-response 4 relationship in beryllium exposure, 5 correct? 6 A. No. 7 Q. So -- 8 A. That's no, there is a 9 dose-response. 10 Q. Okay. And the -- as -- as I 11 recall, the -- the first time there was a 12 study done on beryllium exposure and the 13 ultimate diagnosis of whether it was 14 berylliosis or -- or chronic beryllium 15 disease, was in 1946, correct? 16 MR. LOCKE: Objection. 17 THE WITNESS: The report 18 from the Salem, I think it was a 19 Sylvania plant. But anyway, the 20 plant was Sylvania, Salem -- I 21 don't know the name but the way 22 they describe it -- Harriet 23 Hardy's report from a -- a Salem, 24 Massachusetts, light bulb factory</p>

17 (Pages 62 to 65)

Jonathan Borak, M.D., DABT

Page 66	Page 68
<p>1 was sometime in the late '40s. 2 There may have been cases reported 3 before that. 4 BY MR. GOLOMB: 5 Q. And -- and beryllium, in 6 that case, the concern was on behalf of 7 people who worked in the fluorescent 8 light bulb factories who were being 9 exposed to beryllium dust, correct? 10 A. I don't know that they knew 11 that they were being exposed at the time 12 to beryllium dust. But, yes, they were 13 workers in a fluorescent factory. 14 Q. All right. And -- and we'll 15 take a closer look at this and your -- 16 your article on beryllium and 17 dose-response. But it was concluded in 18 that 1946 study, that yes, in fact, 19 beryllium dust can cause chronic 20 beryllium disease and/or berylliosis, but 21 there was no dose-response found, 22 correct? 23 MR. LOCKE: Objection. 24 THE WITNESS: I -- I don't</p>	<p>1 it's not linear, what do -- what do you 2 mean? 3 MR. HEGARTY: Objection. 4 THE WITNESS: I mean that if 5 you look at the dose and response 6 rates for different groups, it 7 would be a linear, as opposed to a 8 curved distribution. And I think 9 that the beryllium data doesn't 10 allow you to sufficiently 11 differentiate between linear and 12 curvilinear, but there is evidence 13 that it's monotonic. 14 BY MR. GOLOMB: 15 Q. Okay. And, in fact, you 16 know from your research in -- in 17 beryllium exposure, that as an example, 18 when we talk about linear dose-response, 19 that you could have a worker at a 20 beryllium plant who is exposed to 21 beryllium on a daily basis in large 22 amounts and never be effected in terms of 23 disease, berylliosis or chronic beryllium 24 disease, correct?</p>
Page 67	Page 69
<p>1 know that they even spoke of 2 dose-response at that time. 3 BY MR. GOLOMB: 4 Q. Do you know what the -- do 5 you know what I mean when I say linear 6 dose-response? 7 MR. LOCKE: Objection. 8 THE WITNESS: A linear 9 dose -- do I know what a linear 10 dose-response is? 11 BY MR. GOLOMB: 12 Q. Yeah. 13 A. I think dose-response is -- 14 follows a linear distribution. 15 Q. Okay. And does -- does 16 beryllium exposure file -- follow a 17 linear distribution? 18 MR. LOCKE: Objection. 19 THE WITNESS: There is 20 evidence of a monotonic 21 dose-response. I don't know 22 whether it's linear. 23 BY MR. GOLOMB: 24 Q. Okay. And when we say that</p>	<p>1 MR. HEGARTY: Objection. 2 MR. LOCKE: Objection. 3 THE WITNESS: Chronic 4 beryllium disease seems to be 5 something that manifests only in 6 those who are genetically 7 predisposed. 8 There are very few settings 9 in which those who are genetically 10 predisposed have been adequately 11 documented. And it is apparent 12 that the risk is associated with 13 that underlying diaphysis. 14 BY MR. GOLOMB: 15 Q. And by -- by genetically 16 disposed, you refer to that as being 17 sensitized, correct? 18 MR. LOCKE: Objection. 19 THE WITNESS: No. 20 BY MR. GOLOMB: 21 Q. You've never heard of -- 22 you've never heard the term "beryllium 23 sensitivity"? 24 A. Yeah --</p>

18 (Pages 66 to 69)

Jonathan Borak, M.D., DABT

Page 70	Page 72
<p>1 MR. LOCKE: Objection.</p> <p>2 THE WITNESS: -- but you're</p> <p>3 misusing it, sir.</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. Okay. So let -- let me ask</p> <p>6 you this, have -- have you ever been an</p> <p>7 investigator or participated in a</p> <p>8 clinical trial?</p> <p>9 A. Not since I left my</p> <p>10 training.</p> <p>11 Q. When you left your training</p> <p>12 in?</p> <p>13 A. In -- there may have been</p> <p>14 some clinical trials going on at Yale</p> <p>15 when I was a fellow at Yale.</p> <p>16 Q. Okay.</p> <p>17 A. And there were some clinical</p> <p>18 trials going on when I was a resident in</p> <p>19 Montreal. But I have not undertaken any</p> <p>20 on my own.</p> <p>21 Q. Have you participated in any</p> <p>22 in your professional life?</p> <p>23 A. That's what I mean, I</p> <p>24 participated, I contributed to them.</p>	<p>1 patient was one of 100,000 people that</p> <p>2 may have been a participant in a cohort</p> <p>3 study, do you?</p> <p>4 MR. LOCKE: Objection.</p> <p>5 THE WITNESS: You're asking</p> <p>6 me to define the word participant.</p> <p>7 I have never had my name listed to</p> <p>8 the best of my knowledge in such a</p> <p>9 situation.</p> <p>10 BY MR. GOLOMB:</p> <p>11 Q. Have you ever been a</p> <p>12 principal investigator in a case-control</p> <p>13 study?</p> <p>14 A. No, I don't think so.</p> <p>15 Q. Have you ever participated</p> <p>16 in a case-control study?</p> <p>17 A. Yes. But not to the point</p> <p>18 of necessarily -- I'm trying to think if</p> <p>19 I was -- would have been listed as a</p> <p>20 participant or merely as a clinician who</p> <p>21 was involved in such a study.</p> <p>22 Q. Have you ever performed a</p> <p>23 meta-analysis?</p> <p>24 A. Yes.</p>
Page 71	Page 73
<p>1 Q. Okay. But you -- you were</p> <p>2 never principal investigator?</p> <p>3 A. That's what I meant.</p> <p>4 Q. And you haven't participated</p> <p>5 since your medical school training?</p> <p>6 A. Not that I'm aware of.</p> <p>7 Q. Okay. Have you ever been a</p> <p>8 principal investigator in a cohort study?</p> <p>9 A. No.</p> <p>10 Q. Have you ever participated</p> <p>11 in any way in a cohort study?</p> <p>12 A. Not that I can specifically</p> <p>13 recall. But it's possible that I have</p> <p>14 seen patients who were part of a cohort</p> <p>15 study and, therefore, indirectly</p> <p>16 contributed.</p> <p>17 Q. Patients as an internist?</p> <p>18 A. Emergency physician, as an</p> <p>19 occupational physician, toxicologist, I</p> <p>20 don't know.</p> <p>21 Q. Okay. So you -- you</p> <p>22 wouldn't -- you wouldn't consider</p> <p>23 yourself as a participant in a cohort</p> <p>24 study if it just so happened that your</p>	<p>1 Q. When?</p> <p>2 A. Regularly. I've had some --</p> <p>3 the one that's published here is on</p> <p>4 cancer on the brain in rubber workers.</p> <p>5 Q. Can you go into your CV</p> <p>6 and -- and point that out for me?</p> <p>7 A. How about on Page 14. Borak</p> <p>8 Slade, Russi, "Risks of Brain Tumors in</p> <p>9 Rubber Workers: A Meta-analysis."</p> <p>10 Q. Okay. I -- I'm sorry, but</p> <p>11 can you show me where on the page that</p> <p>12 is?</p> <p>13 A. One, two, three, four, five,</p> <p>14 six -- seven up from the bottom on page</p> <p>15 14.</p> <p>16 Q. Okay. Borak, Slade, Russi?</p> <p>17 That's the article you're referring to?</p> <p>18 A. Borak, Slade, Russi.</p> <p>19 Q. Okay. Did you ever -- have</p> <p>20 you ever done any other meta-analysis?</p> <p>21 A. I have never published one.</p> <p>22 Q. Okay. Have you -- in</p> <p>23 this --</p> <p>24 A. Let me step back for a</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 74</p> <p>1 moment. We have done pooled analyses 2 which were not amenable to quantitative 3 meta-analysis. I published two large 4 papers a year ago or so, Fields, Borak 5 and Lewis involved with mercury, in which 6 we pooled large numbers of studies and 7 found that they could not -- they were 8 not amenable to quantitative 9 meta-analysis. We described them instead 10 as a different type of pooling. It was 11 not, strictly speaking, a meta-analysis. 12 But meta-analysis means about analyses. 13 And we were evaluating the underlying 14 analyses. We just couldn't pool them in 15 a mathematical way. 16 Q. And that study -- that 17 article that you're now referring to, 18 what was the purpose of that article? 19 What were you trying to determine? 20 A. The question was, do the 21 neurological effects of exposure to 22 elemental mercury persist after the end 23 of exposure. And it's actually 24 surprisingly a question that cannot be</p>	<p style="text-align: right;">Page 76</p> <p>1 Q. That's not correct? 2 A. No that's not correct. 3 Q. So you were -- did you do a 4 causation analysis in that? 5 A. We then looked at a second 6 set of studies that had looked at workers 7 historically exposed, a long time since, 8 at very high levels, but who had not been 9 actively -- not evaluated while they were 10 actively exposed. 11 So essentially we had two 12 groups of studies, one of them looking at 13 workers -- because it's usually 14 workers -- looking at people who had been 15 exposed to relatively high levels of 16 mercury during the time that they were 17 being exposed, and exposed for a period 18 of time sufficient to reach relatively a 19 steady state. 20 Then we looked at groups of 21 workers who had done similar jobs, in 22 some cases, but who had not been 23 evaluated while they were being exposed, 24 but who were evaluated 10 or 15 or</p>
<p style="text-align: right;">Page 75</p> <p>1 directly answered, because you would need 2 a longitudinal study. You would need to 3 look at workers when they were being 4 heavily exposed for example, and then 5 you'd need to look at them years later. 6 There were no such studies. 7 And so we pooled the studies 8 of workers who -- 45 or 50 studies who 9 were actively being exposed to mercury. 10 And we looked to see what were the 11 neurological effects that could be seen 12 at various levels of ongoing exposure, so 13 as to try to get a sense of the 14 dose-effect relationship acutely, that is 15 to say, during exposure. 16 Q. Am I correct that you, in 17 that, the purpose of that article was 18 not -- as an example, was not to look at 19 the exposure and the effect that it would 20 have on some possible disease? 21 MR. LOCKE: Objection. 22 BY MR. GOLOMB: 23 Q. Is that correct? 24 A. No.</p>	<p style="text-align: right;">Page 77</p> <p>1 20 years later. 2 And the question that we 3 were asking was, if tremor, for example, 4 is manifested in workers who are 5 currently being exposed, and presumably 6 nonworkers -- I mean, just -- it's easier 7 in an occupational setting -- what would 8 be the likelihood of seeing tremor 15 or 9 20 years later? Okay. 10 And because there was no 11 longitudinal study to do that, we did 12 what we referred to as a synthetic 13 cohort. We created a cohort by trying to 14 figure out what was the relationship 15 between exposure and response at the time 16 of the exposure. And then we looked to 17 see if we knew what these workers -- 18 20 years later, we knew what they had 19 been exposed to, but we didn't know what 20 their neurological outcome was. 21 Q. My question was -- my 22 question was did you do a causation 23 analysis? 24 A. I don't know what you mean</p>

20 (Pages 74 to 77)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 78</p> <p>1 specifically by a causation analysis. 2 Q. Okay. What -- what do you 3 mean by causation analysis? 4 A. I don't know. 5 Q. Okay. Have you ever heard 6 of the term "causation analysis"? 7 A. I've heard it, but I've 8 never heard it defined clearly. 9 Q. Let's just talk about, since 10 we talk about beryllium. Does -- does 11 beryllium exposure -- can beryllium 12 exposure cause chronic beryllium disease? 13 MR. LOCKE: Objection. 14 THE WITNESS: In some 15 people, certain levels of exposure 16 can cause a chronic lung disease 17 called chronic beryllium disease. 18 BY MR. GOLOMB: 19 Q. Okay. And so in that case, 20 you can make -- you can, in certain 21 people, make a determination of an 22 exposure causing a disease, correct? 23 A. Not directly. 24 MR. LOCKE: Objection.</p>	<p style="text-align: right;">Page 80</p> <p>1 MR. LOCKE: Objection. 2 THE WITNESS: It depends 3 what you do with the cigarettes. 4 BY MR. GOLOMB: 5 Q. Have you seen people smoke 6 cigarettes? 7 A. Yes. 8 Q. All right. And so you know 9 what I mean by smoking a cigarette? 10 A. Yes. 11 Q. Okay. You don't need any 12 further explanation on that? 13 MR. HEGARTY: Objection. 14 THE WITNESS: No, no. 15 That's clear. 16 BY MR. GOLOMB: 17 Q. And do you have an -- you 18 have an opinion one way or the other as 19 to whether or not somebody who is smoking 20 cigarettes, whether that can cause lung 21 cancer? 22 MR. LOCKE: Objection. 23 THE WITNESS: It can, 24 dependent upon the quantity and</p>
<p style="text-align: right;">Page 79</p> <p>1 BY MR. GOLOMB: 2 Q. Okay. Do you think there's 3 any exposure on earth that can cause a 4 disease? 5 A. I don't understand your 6 question. 7 Q. Okay. Are you familiar with 8 cigarettes? 9 A. I understand what they are, 10 yes. 11 Q. Okay. Are you -- do you 12 know that cigarettes have nicotine in 13 them? 14 A. I understand so. 15 Q. Okay. Can cigarettes and 16 the nicotine in cigarettes cause lung 17 cancer? 18 MR. LOCKE: Objection. 19 THE WITNESS: Nicotine is 20 not carcinogenic. Is that your 21 question? 22 BY MR. GOLOMB: 23 Q. Can cigarettes cause lung 24 cancer?</p>	<p style="text-align: right;">Page 81</p> <p>1 other factors. 2 BY MR. GOLOMB: 3 Q. But we -- so it can cause 4 lung cancer? 5 A. Under some circumstances. 6 Q. All right. And so there is 7 an example of an exposure, in this case, 8 whatever it is that the smoke of a 9 cigarette does, there is a -- there is an 10 example of an exposure causing a disease? 11 A. Yes. But the problem with 12 your question is, for example, one 13 cigarette does not cause lung cancer. 14 Q. Well, we can read back the 15 question. Did I limit it to one 16 cigarette? 17 MR. LOCKE: Objection. 18 THE WITNESS: You didn't 19 qualify the question. 20 BY MR. GOLOMB: 21 Q. Right. Well, the 22 qualification was, it can cause lung 23 cancer. 24 A. And the answer is, it can</p>

Jonathan Borak, M.D., DABT

Page 82	Page 84
<p>1 not also.</p> <p>2 Q. Well, is that the answer to</p> <p>3 that question?</p> <p>4 A. I -- no, the answer was it</p> <p>5 depends upon the circumstances.</p> <p>6 Q. No, the answer to the</p> <p>7 question, it can cause lung cancer -- is</p> <p>8 the answer to that question, it also can</p> <p>9 not?</p> <p>10 MR. LOCKE: Objection.</p> <p>11 THE WITNESS: It depends</p> <p>12 upon how you use it.</p> <p>13 BY MR. GOLOMB:</p> <p>14 Q. Okay. Well, you're the one</p> <p>15 who just answered the question --</p> <p>16 A. One cigarette --</p> <p>17 Q. I -- excuse me.</p> <p>18 A. No, you've been stepping on</p> <p>19 me, sir. One cigarette --</p> <p>20 Q. Let me finish my question.</p> <p>21 A. -- does not cause cancer.</p> <p>22 Q. Okay. And we can agree on</p> <p>23 that, and we can -- I think we can also</p> <p>24 agree that that has absolutely nothing to</p>	<p>1 MR. LOCKE: Oh yes.</p> <p>2 THE WITNESS: Thank you.</p> <p>3 MR. LOCKE: The front page</p> <p>4 of Exhibit 4 is not attached to</p> <p>5 the other pages. Is that all part</p> <p>6 of Exhibit 4?</p> <p>7 MR. GOLOMB: It is. I</p> <p>8 don't -- sorry, I don't have an</p> <p>9 extra copy of that.</p> <p>10 It's the -- the website from</p> <p>11 Jonathan Borak & Company.</p> <p>12 THE WITNESS: It, to be</p> <p>13 clear, is the website formerly.</p> <p>14 It has not been hosted or paid for</p> <p>15 by me, for years.</p> <p>16 BY MR. GOLOMB:</p> <p>17 Q. Doctor, what you have in</p> <p>18 front of you has been marked as -- as</p> <p>19 Exhibit 4.</p> <p>20 Are you familiar with that?</p> <p>21 MR. LOCKE: Just -- just to</p> <p>22 be clear so that we have a record.</p> <p>23 I want to make sure that we know</p> <p>24 that it's a one, two -- six-page</p>
Page 83	Page 85
<p>1 do with my question.</p> <p>2 MR. LOCKE: Objection.</p> <p>3 BY MR. GOLOMB:</p> <p>4 Q. Can we agree on that?</p> <p>5 MR. LOCKE: Objection.</p> <p>6 THE WITNESS: No, sir. Read</p> <p>7 back your question.</p> <p>8 BY MR. GOLOMB:</p> <p>9 Q. You heard me say one</p> <p>10 cigarette?</p> <p>11 A. Read back the question, sir.</p> <p>12 Q. We -- we're not going to</p> <p>13 waste the time of -- of going back to</p> <p>14 read the question. The question was</p> <p>15 pretty clear.</p> <p>16 Let's look at Exhibit 3.</p> <p>17 No, I'm sorry, let's go to 4. We'll come</p> <p>18 back to 3.</p> <p>19 (Document marked for</p> <p>20 identification as Exhibit</p> <p>21 Borak-4.)</p> <p>22 THE WITNESS: Will you give</p> <p>23 me enough time to fill my coffee</p> <p>24 cup?</p>	<p>1 document.</p> <p>2 BY MR. GOLOMB:</p> <p>3 Q. Okay. And so take -- take a</p> <p>4 look at this six-page document. We'll</p> <p>5 try to describe what's there for the</p> <p>6 record.</p> <p>7 The -- the first page is the</p> <p>8 homepage of -- of the website; is that</p> <p>9 correct?</p> <p>10 A. Of the former website, yes.</p> <p>11 Q. Okay. Well, we'll talk</p> <p>12 about that. And then the -- the</p> <p>13 remaining pages, which are marked in the</p> <p>14 lower right-hand corner as Pages 1</p> <p>15 through 5.</p> <p>16 Do you see that?</p> <p>17 MR. LOCKE: Not on our copy.</p> <p>18 BY MR. GOLOMB:</p> <p>19 Q. Okay. It -- they -- they --</p> <p>20 it is a listing and a brief description</p> <p>21 of "recent peer-reviewed scientific</p> <p>22 reports."</p> <p>23 Do you see that?</p> <p>24 A. That's what it says.</p>

22 (Pages 82 to 85)

Jonathan Borak, M.D., DABT

Page 86	Page 88
<p>1 Q. Okay. Now --</p> <p>2 A. Doesn't say recent. It says</p> <p>3 peer-reviewed -- oh, it does, it does say</p> <p>4 recent, sorry.</p> <p>5 Q. So you mentioned that this</p> <p>6 is something that you formerly hosted.</p> <p>7 What -- why don't you -- let's talk about</p> <p>8 Jonathan Borak & Company, first of all.</p> <p>9 When -- when was Jonathan</p> <p>10 Borak & Company started?</p> <p>11 A. 1988, something like that.</p> <p>12 Q. And in 1988, when you</p> <p>13 started Jonathan Borak & Company, what</p> <p>14 did it do?</p> <p>15 A. It provided consulting</p> <p>16 services.</p> <p>17 Q. To whom?</p> <p>18 A. My first clients were</p> <p>19 companies that made chemicals and wanted</p> <p>20 to develop informational materials to</p> <p>21 inform first responders in the event of</p> <p>22 accidents.</p> <p>23 Q. And at some point did</p> <p>24 Jonathan Borak & Company become involved</p>	<p>1 A. It was an administrative law</p> <p>2 case.</p> <p>3 Q. And -- and who were you</p> <p>4 providing consulting services for?</p> <p>5 A. I was providing services to</p> <p>6 a law firm. And they were providing</p> <p>7 services to a mining company. And they</p> <p>8 were being adjudicated by the Mine Safety</p> <p>9 and Health Administration.</p> <p>10 Q. And was the mining company</p> <p>11 the -- the defendant in that particular</p> <p>12 litigation?</p> <p>13 A. I think that's right.</p> <p>14 Q. All right. In your -- in</p> <p>15 your services over the years as a</p> <p>16 consultant in litigation -- first of all,</p> <p>17 approximately how many times have you</p> <p>18 done that?</p> <p>19 A. I don't know the number, but</p> <p>20 I very rarely have an opportunity to be</p> <p>21 deposed or to testify. A few times every</p> <p>22 couple of years.</p> <p>23 Q. Okay. For -- and a few</p> <p>24 times every couple years for the last</p>
Page 87	Page 89
<p>1 in -- in litigation as a consultant?</p> <p>2 A. At -- at some point, yes.</p> <p>3 Q. When?</p> <p>4 A. I don't recall specifically.</p> <p>5 Q. Can you tell me generally</p> <p>6 when it was?</p> <p>7 A. After 1988.</p> <p>8 Q. And was it before or after</p> <p>9 2000?</p> <p>10 A. I think it was probably</p> <p>11 before.</p> <p>12 Q. And when you first began</p> <p>13 in -- in litigation services as a</p> <p>14 consultant, give me some examples of what</p> <p>15 type of litigation consulting you were</p> <p>16 doing.</p> <p>17 A. One of the first was whether</p> <p>18 mercury was a hazard and a risk in people</p> <p>19 if they were exposed in a dining room.</p> <p>20 Q. In a?</p> <p>21 A. Dining room.</p> <p>22 Q. Okay. And what, just very</p> <p>23 generally, what was the litigation? Was</p> <p>24 that the litigation?</p>	<p>1 20 years or so?</p> <p>2 A. I'm sure that there are</p> <p>3 large periods of time when I've done</p> <p>4 none. But I don't have that in front of</p> <p>5 me.</p> <p>6 Q. Okay. So have you served as</p> <p>7 a consultant in litigation more or less</p> <p>8 than 20 times?</p> <p>9 A. Let me step back and say</p> <p>10 that my company often works for lawyers</p> <p>11 in terms of regulatory issues and</p> <p>12 enforcement issues, and in contract</p> <p>13 issues and in safety issues. It's often</p> <p>14 through a lawyer or their outside law</p> <p>15 firm that I'm approached. I don't know</p> <p>16 how many of those have ended up in</p> <p>17 litigation and I certainly have not been</p> <p>18 involved in the litigation the majority</p> <p>19 of those.</p> <p>20 I have lawyers who approach</p> <p>21 me and ask me to provide literature</p> <p>22 reviews. And I will do that and have</p> <p>23 done that over the years with some</p> <p>24 regularity.</p>

Jonathan Borak, M.D., DABT

Page 90	Page 92
<p>1 I assume that those are used 2 for people who have litigation concerns, 3 but I've not been asked to testify in 4 those situations. 5 Q. And out of all the times you 6 have served in some capacity as a 7 consultant in -- in litigation, how many 8 of those times have you served on behalf 9 of a plaintiff in a -- in a -- in 10 litigation? 11 A. In the last years it's been 12 more commonly defense. In the early 13 years of my career it was more commonly 14 plaintiff. 15 Q. Okay. And when you say the 16 early years of your career, what -- what 17 years are you talking about? 18 A. I began doing legal 19 consulting when I was running a trauma 20 center in an emergency room. 21 Q. That was back in the '70s? 22 A. That's correct. 23 Q. And -- 24 A. More -- no, no. In the</p>	<p>1 records. And I would review them and 2 tell him or his client whether there was 3 or was not an error that had been 4 committed based upon my judgment. And it 5 represented both sides, defense and 6 plaintiffs, but more often plaintiffs. 7 Q. Okay. And so those were in 8 medical malpractice cases? 9 A. And -- and personal injury. 10 Q. Okay. When -- when you say 11 personal injury, what do you mean? 12 A. Automobile cases where the 13 question was not whether the doctor did 14 something wrong. 15 Q. It was a question of what 16 the injury was? 17 A. Yes. 18 Q. And what effect it had on 19 the -- the individual who was injured? 20 A. Stuff like that. 21 Q. Okay. And that was -- was 22 that as a treating physician? 23 A. Was I? 24 Q. Yeah.</p>
Page 91	Page 93
<p>1 '80s. 2 Q. Okay. And in those cases, 3 when you say that you were providing 4 litigation consulting services on behalf 5 of plaintiffs, was that as a result of 6 your having treated those patients in the 7 emergency room? 8 A. No. 9 Q. So give me some examples of 10 what you're talking about. 11 A. I was approached by a man in 12 New York who did what this gentleman with 13 the video camera does, and he was 14 providing that service to my parents who 15 had a business that did what -- what this 16 lady here with the stenography does. And 17 my father was boasting of his son the 18 doctor, and the guy with the camera said 19 I have a company that provides this 20 service, we would love to talk to your 21 son. 22 And I spoke to this guy and 23 he had a company that did this. I never 24 saw it. But he would send me medical</p>	<p>1 A. No. 2 Q. Okay. So -- and 3 approximately how many times were you 4 related -- were you involved in -- in 5 that kind of litigation? 6 A. I -- I -- involved in the 7 review, or involved in deposition and 8 testimony? 9 Q. Either. 10 A. Either. 11 Q. Yeah. 12 A. I would say that there were 13 a bunch of things that I reviewed and 14 rarely in deposition or testimony. 15 Q. Okay. And the last time you 16 did that was in the '80s? 17 A. That I worked for this 18 fellow? Yes, back in the '80s. 19 Q. No. When was the last time 20 you did any of this consulting work that 21 we're now talking about on behalf of 22 injured plaintiffs? 23 A. Ah. 24 MR. HEGARTY: Objection.</p>

24 (Pages 90 to 93)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 94</p> <p>1 THE WITNESS: I was deposed 2 in January, in a question of 3 whether an inmate in a New York 4 State prison was harmed as a 5 result of the actions of the 6 guards. And I was representing 7 the plaintiff. 8 BY MR. GOLOMB: 9 Q. In January of 2019? 10 A. Yes. 11 Q. And when was the last time 12 that you consulted on behalf of a 13 plaintiff before that? 14 A. That's the last time that I 15 testified. I see documents in a variety 16 of contexts in which there is probably a 17 plaintiff, but I've never been 18 representing them in a courtroom. 19 Q. Let's take a look at 20 Exhibit 6. 21 (Document marked for 22 identification as Exhibit 23 Borak-6.) 24 BY MR. GOLOMB:</p>	<p style="text-align: right;">Page 96</p> <p>1 have a list of cases in the past four 2 years. 3 Q. And the first case on that 4 list, is Cabot Corporation versus Arrow, 5 correct? 6 A. Correct. 7 Q. And who were you consulting 8 on behalf of in that case? 9 A. In that case I was 10 consulting on behalf of Arrow. 11 Q. And what does Arrow do? 12 A. They make respirators. 13 Q. And Cabot Corporation, the 14 plaintiff in that case, is a beryllium 15 manufacturer that was formerly in 16 Reading, Pennsylvania, correct? 17 A. They have not been 18 associated with beryllium in probably 19 30 years. But your memory is very good. 20 Q. And just very generally, 21 what was that case about? 22 A. Cabot sold a subsidiary to 23 Arrow. The subsidiary manufactured 24 respirators.</p>
<p style="text-align: right;">Page 95</p> <p>1 Q. Which is a list of your 2 deposition and trial testimony that you 3 submitted or that Mr. Locke submitted to 4 us as part of the production prior to 5 this deposition. And we referred to this 6 list earlier today, correct? 7 A. Yes. 8 Q. And it lists nine separate 9 cases, correct? 10 A. Correct. 11 Q. And in eight of those cases, 12 you testified via deposition? 13 A. Yes. That's correct. 14 Q. And one of those cases you 15 testified at trial, correct? 16 A. Yes. That's correct. 17 Q. Now, have you ever given a 18 deposition as a consultant before June 4, 19 2015? 20 A. Oh, yes. 21 Q. Do you know why this list is 22 limited to cases on or after June 4, 23 2015? 24 A. I was told that I should</p>	<p style="text-align: right;">Page 97</p> <p>1 As part of the negotiated 2 transaction, Cabot retained liability for 3 future claims resulting from silica or 4 asbestos. 5 And Arrow accepted liability 6 for future claims, including historical 7 exposures, but future claims on -- a 8 couple kinds of things, for all other 9 exposures. 10 One day, they discovered 11 they had a large number -- Arrow 12 discovered there were a large number of 13 complainants with coal workers' 14 pneumoconiosis. I don't know if they had 15 coal workers' pneumoconiosis. I did not 16 deal with the medical records. I was 17 asked to evaluate a simple question, to 18 ask can you get coal workers' 19 pneumoconiosis in the absence of silica. 20 Q. Now, you were not acting as 21 an epidemiologist in that case, correct? 22 A. I was looking at old reports 23 of exposure-related materials using, 24 among other things, epidemiological</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 98</p> <p>1 skills.</p> <p>2 Q. And did you do a causation</p> <p>3 analysis in that case?</p> <p>4 A. I don't know what you mean</p> <p>5 by causation analysis.</p> <p>6 Q. You testified four times in</p> <p>7 the Bair Hugger litigation?</p> <p>8 A. Yes.</p> <p>9 Q. What was your role in the</p> <p>10 Bair Hugger litigation?</p> <p>11 A. If you mean was it on the</p> <p>12 defense, yes.</p> <p>13 Q. No. What did you do in the</p> <p>14 case?</p> <p>15 A. Do you want to know what the</p> <p>16 case is about?</p> <p>17 Q. I know what the case is</p> <p>18 about. What did you do?</p> <p>19 A. I opined that the evidence</p> <p>20 did not indicate that Bair Hugger caused</p> <p>21 infections.</p> <p>22 Q. And what did you do to come</p> <p>23 up with that conclusion?</p> <p>24 A. I read a very large amount</p>	<p style="text-align: right;">Page 100</p> <p>1 testimony in that case?</p> <p>2 A. I do.</p> <p>3 Q. And do you recall, as part</p> <p>4 of that testimony that you gave, do you</p> <p>5 recall the cross-examination in that</p> <p>6 case?</p> <p>7 A. I guess, yes.</p> <p>8 Q. And where was that case</p> <p>9 tried?</p> <p>10 A. Minneapolis.</p> <p>11 Q. And do you recall the result</p> <p>12 in that case?</p> <p>13 A. Yes.</p> <p>14 Q. What was the result?</p> <p>15 A. A defense verdict.</p> <p>16 Q. And the -- you've given</p> <p>17 testimony via deposition in three other</p> <p>18 Bair Hugger cases, correct?</p> <p>19 A. Actually there are two Bair</p> <p>20 Hugger cases, and one of them had three</p> <p>21 hearings.</p> <p>22 Q. Okay. When you say three --</p> <p>23 so there's four cases listed here.</p> <p>24 A. Yeah, four dates.</p>
<p style="text-align: right;">Page 99</p> <p>1 of the literature, and I evaluated some</p> <p>2 of the original work that had been done</p> <p>3 at a hospital called Wambeck, the only</p> <p>4 report that suggests that there is an</p> <p>5 association, which was a study which had</p> <p>6 a number of important design flaws.</p> <p>7 And I reevaluated that study</p> <p>8 in part using a reanalysis that was</p> <p>9 provided on the statistics by the</p> <p>10 emeritus chair of biostatistics at Yale</p> <p>11 Public Health.</p> <p>12 Q. And you -- your -- according</p> <p>13 to Exhibit 6, you testified at trial on</p> <p>14 May 23rd and May 24th of 2018, correct?</p> <p>15 A. Yes, that's correct.</p> <p>16 Q. And who was the lawyer that</p> <p>17 retained your services in that case?</p> <p>18 A. It was a firm called</p> <p>19 Blackwell Burke.</p> <p>20 Q. And do you recall who the</p> <p>21 lawyer was representing the plaintiff in</p> <p>22 that case?</p> <p>23 A. No, I don't.</p> <p>24 Q. Do you recall giving</p>	<p style="text-align: right;">Page 101</p> <p>1 Q. Right. So three by</p> <p>2 deposition, and one trial?</p> <p>3 A. Yes.</p> <p>4 Q. All right. So when you say</p> <p>5 there were two cases, what do you mean?</p> <p>6 A. Well, the deposition held on</p> <p>7 February 15th was a two-hour deposition</p> <p>8 related to an appeal of a court</p> <p>9 determination that was related to the</p> <p>10 first of those cases.</p> <p>11 Q. Now, in reaching your</p> <p>12 conclusions in that case, did you do a</p> <p>13 meta-analysis?</p> <p>14 A. I don't think there were any</p> <p>15 data which would be amenable to a</p> <p>16 meta-analysis.</p> <p>17 Q. So the answer is no?</p> <p>18 A. No.</p> <p>19 Q. Did you do a case-control</p> <p>20 study?</p> <p>21 A. No.</p> <p>22 Q. Did you -- do you know who</p> <p>23 Bradford Hill is?</p> <p>24 A. Yes.</p>

Jonathan Borak, M.D., DABT

Page 102	Page 104
<p>1 Q. Did you do a Bradford Hill 2 analysis? 3 A. I did a critique of a 4 Bradford Hill analysis in one of these. 5 Q. Okay. Do you understand the 6 difference between doing your own 7 Bradford Hill analysis and commenting on 8 somebody else's Bradford Hill analysis? 9 MR. LOCKE: Objection. 10 THE WITNESS: Not if you do 11 the critique properly. You have 12 to go through all of the criteria 13 and all of the data. It was a 14 response to something. 15 BY MR. GOLOMB: 16 Q. Okay. And is that what you 17 did in the Bair Hugger cases? 18 A. In one. 19 Q. In one. Which one of these 20 four did you do that in? 21 A. In the -- in the first one 22 a -- which is the one that has come back 23 again, where there was a question of 24 general causation, there was a Bradford</p>	<p>1 in any beryllium exposure cases? 2 A. Yes, I have at some point. 3 Q. How many times? 4 A. I think I was in court once. 5 I may have been deposed. I don't recall. 6 Q. Okay. Have you testified at 7 deposition in a beryllium exposure case? 8 A. That's what I'm trying to 9 recall. I -- I would imagine -- I was in 10 court in a case in California. I don't 11 believe -- no, I probably was deposed 12 there as well. And that was years ago. 13 I do not know that I have 14 been deposed in other cases. It's 15 possible. 16 Q. Okay. You -- I want to be 17 clear that when we -- when we talk about 18 testimony, there -- there can be 19 deposition testimony outside of the 20 courtroom and there can be trial 21 testimony inside of the courtroom. 22 You understand that, right? 23 A. I do. 24 Q. Okay. And it -- and in some</p>
Page 103	Page 105
<p>1 Hill argument put forth, and I responded 2 to that. 3 Q. Okay. And just to be clear, 4 in this case that brings us here today, 5 you did not do a Bradford Hill analysis, 6 correct? 7 A. Yes. I did not do a 8 Bradford Hill analysis. 9 Q. And you weren't asked to do 10 a Bradford Hill analysis? 11 A. That's correct. 12 Q. And you did not -- while you 13 commented on, my words, the state of the 14 science, you were not asked nor did you 15 give an opinion on whether or not talc 16 can cause ovarian cancer, correct? 17 MR. LOCKE: Objection. 18 MR. HEGARTY: Objection. 19 THE WITNESS: I did not -- I 20 was not asked to render such an 21 opinion. 22 BY MR. GOLOMB: 23 Q. Correct. Now, outside of 24 this list, did you -- have you testified</p>	<p>1 cases you may have been deposed and not 2 testified at trial, right? 3 A. Yes, yes, yes, yes, yes. 4 Q. In other cases there may be 5 a scenario where you never gave a 6 deposition, but testified at trial? 7 A. Yes, that's correct. 8 Q. All right. I mean there's a 9 number of states that -- well, let me 10 just -- 11 A. I -- I'm sorry. My mouth 12 opens because I'm just thinking back to 13 things in my history. I'm not trying to 14 contradict you. I'm also trying to 15 remember whether you are the attorney who 16 worked with Honik and whom I may have 17 dealt with in Florida once. 18 Q. I am. 19 A. Very good. That's why my 20 mouth opened. And the answer is I've 21 been at least twice in the courtroom. 22 Q. Okay. And you've been at 23 least twice in a courtroom in beryllium 24 cases?</p>

27 (Pages 102 to 105)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 106</p> <p>1 A. At least.</p> <p>2 Q. And there are other cases</p> <p>3 where you may have testified both at</p> <p>4 trial and at -- via deposition?</p> <p>5 A. Well, I'm not sure what you</p> <p>6 mean by other cases.</p> <p>7 I -- I may have been deposed</p> <p>8 in those two cases.</p> <p>9 Q. Right. And here --</p> <p>10 A. And I may have had other</p> <p>11 depositions.</p> <p>12 Q. And who were you acting as a</p> <p>13 consultant for in those cases?</p> <p>14 A. Some cases, probably</p> <p>15 Materion, then known as Brush Wellman.</p> <p>16 In the case where I first had the</p> <p>17 opportunity to meet you, I was probably</p> <p>18 working for an airplane maker. I don't</p> <p>19 remember whom.</p> <p>20 Q. Lockheed?</p> <p>21 A. That sounds right. Maybe.</p> <p>22 I may have even been deposed</p> <p>23 once, I don't know, involving a -- an</p> <p>24 aluminum maker. It may have been Alcoa, I</p>	<p style="text-align: right;">Page 108</p> <p>1 That's the -- the wonderful giving</p> <p>2 generosity of the internet.</p> <p>3 Q. Well, this is --</p> <p>4 A. But I stand by everything</p> <p>5 that it says there in 2008. I probably</p> <p>6 wrote it all.</p> <p>7 Q. Well, what -- so why did you</p> <p>8 take out -- down the website, or why did</p> <p>9 you stop hosting the website?</p> <p>10 A. I stopped hosting it because</p> <p>11 it became complicated. It became</p> <p>12 complicated because the person who --</p> <p>13 you -- this is a bunch of irrelevancies.</p> <p>14 The person who developed</p> <p>15 this website was the webmeister at the</p> <p>16 School of Forestry and Environmental</p> <p>17 Studies at Yale.</p> <p>18 Q. I think they call them</p> <p>19 webmaster.</p> <p>20 A. Okay. And he retained</p> <p>21 the -- the original software. And I had</p> <p>22 to go through him for updates and so</p> <p>23 forth. And then I retained for my</p> <p>24 company somebody else to manage my -- he</p>
<p style="text-align: right;">Page 107</p> <p>1 don't remember.</p> <p>2 Q. But -- so let's go back to</p> <p>3 Exhibit 4 which is the Jonathan Borak &</p> <p>4 Company website. And let's look at</p> <p>5 Pages 1 through 5 of the recent</p> <p>6 peer-reviewed scientific studies.</p> <p>7 First of all, let me ask you</p> <p>8 this before I ask you about that.</p> <p>9 You -- you mentioned before</p> <p>10 that you no longer host this website?</p> <p>11 A. Correct.</p> <p>12 Q. When -- when did you stop</p> <p>13 hosting this website?</p> <p>14 A. Probably at least three</p> <p>15 years ago. And one of the reasons that I</p> <p>16 bring this specifically to your attention</p> <p>17 is that I'm a little embarrassed having</p> <p>18 put out something as though I were still</p> <p>19 hosting, which says recent peer-reviewed</p> <p>20 reports and the most recent is 2007.</p> <p>21 This -- this was not curated even before</p> <p>22 then.</p> <p>23 But I am not responsible for</p> <p>24 this website -- I can't get it down.</p>	<p style="text-align: right;">Page 109</p> <p>1 didn't manage my IT. I had somebody I</p> <p>2 hired to do my IT work. He was sent -- I</p> <p>3 understand he was sent the master</p> <p>4 software and he lost it, no kidding.</p> <p>5 And so it became necessary</p> <p>6 for me either one day to totally</p> <p>7 reconstruct the website or throw it away,</p> <p>8 and I decided to throw it away. Also</p> <p>9 because a number of the people listed on</p> <p>10 this website as working in my office were</p> <p>11 no longer in my office and others who</p> <p>12 were in my office were not on my website.</p> <p>13 And so it no longer represented reality.</p> <p>14 Q. What was the purpose of the</p> <p>15 website?</p> <p>16 A. It was like putting my CV</p> <p>17 online.</p> <p>18 Q. All right. Now, the -- this</p> <p>19 list of recent peer-reviewed scientific</p> <p>20 reports was, aside from your -- your</p> <p>21 words, your embarrassment that there's</p> <p>22 nothing on here since 2007, looking at</p> <p>23 your -- your list of peer-reviewed</p> <p>24 articles from your CV and looking at</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 110</p> <p>1 this, my impression at least, correct me 2 if I'm wrong, this was never meant to be 3 an all-inclusive list, right? 4 MR. HEGARTY: Objection. 5 THE WITNESS: It -- it was 6 not meant to be an all-inclusive 7 list. There was a more recent 8 list on the Yale website. 9 BY MR. GOLOMB: 10 Q. And -- and is that meant to 11 be an all-inclusive list? 12 A. No. 13 Q. All right. And so when 14 looking at the Jonathan Borak site of 15 recent peer-reviewed scientific reports, 16 were -- were you the one who selected 17 what -- when the website was being 18 hosted, were you the one who was deciding 19 what to put up? 20 A. I certainly was involved in 21 the decision. 22 Q. Okay. Because you -- you 23 didn't want to put up whatever the number 24 is, 100, 150, published articles that</p>	<p style="text-align: right;">Page 112</p> <p>1 articles during that same period of time 2 off the website? 3 A. I think that I was meaning 4 to indicate something about the scope of 5 our interests in the office, which is why 6 I've got a couple of these on beryllium 7 and I've got one on hearing loss. And 8 I've got one on diesel. And I've got one 9 on seafood arsenic, and all of these were 10 topics that were being actively 11 considered in my office. 12 I also included some of the 13 people who worked for me, just to show 14 the sorts of things that they had 15 interests in. 16 And -- and this was just 17 meant to be representative. It was not 18 meant to be inclusive. And I don't know 19 that it has a great subliminal message, 20 but it may have. I mean, I believe in 21 Freud. 22 Q. And -- and most of -- most 23 of these articles are related to 24 toxicology and occupational and</p>
<p style="text-align: right;">Page 111</p> <p>1 you've done over the last 40 years, 2 correct? 3 A. It -- it was not my goal. 4 Q. Right. You wanted to put up 5 articles that -- that you were, number 6 one, proud of, and number two, that 7 represented what your interests were? 8 MR. HEGARTY: Objection. 9 MR. LOCKE: Objection. 10 THE WITNESS: You know what, 11 that sounds a little -- a little 12 cold. I was putting up, generally 13 speaking, those things which I 14 thought were interesting and that 15 were recent. 16 I mean, this -- this 17 ten-year-old list doesn't reflect 18 much except what was interesting 19 to me in -- in that time. 20 BY MR. GOLOMB: 21 Q. Okay. But at least during 22 that period of time, this -- you -- you 23 chose these particular articles to go on 24 that website and you chose to leave other</p>	<p style="text-align: right;">Page 113</p> <p>1 environmental health, correct? 2 A. Well, the first one is about 3 toxicology and risk assessment. 4 The second one had to do 5 with toxicology and environmental health. 6 The third one had to do with 7 hearing loss. Mainly workplace. 8 The fourth and fifth 9 referred to -- the fourth referred to 10 beryllium in the workplace, and the fifth 11 referred to a test and its validity as a 12 clinical screening test. 13 There is a paper listed in 14 here that has to do with the incidence of 15 asthma among aluminum workers, that's an 16 epidemiological application to the 17 workplace. 18 I -- I -- it's difficult to 19 give you a single answer. I'm not trying 20 to be... 21 Q. In any of the articles you 22 just mentioned, did you do a Bradford 23 Hill analysis? 24 MR. LOCKE: Objection.</p>

Jonathan Borak, M.D., DABT

Page 114	Page 116
<p>1 THE WITNESS: It's a 2 complicated answer to a simple 3 question. I apologize. 4 I have been teaching 5 Bradford Hill and writing about 6 Bradford Hill. And it permeates 7 my -- my professional thinking. 8 It is hard for me to review 9 the scientific literature without 10 a little piece of Bradford Hill 11 back there somewhere in my 12 occipital. But I don't normally 13 sit down and say, one, two, three, 14 four, five, six, seven, eight, 15 nine, and try to match them up in 16 that sense. 17 So the answer is Bradford 18 Hill lives within me, but I rarely 19 put forth that kind of a formal, 20 one through nine Bradford Hill 21 analysis. Does that -- is that an 22 answer? 23 BY MR. GOLOMB: 24 Q. And you certainly didn't do</p>	<p>1 to you. 2 BY MR. GOLOMB: 3 Q. I'm not saying you said 4 anything. I'm asking you a question. 5 A. Ask it again, sir. 6 MR. GOLOMB: Can you read it 7 back, please. 8 (Whereupon, the court 9 reporter read back the requested 10 portion of testimony.) 11 MR. LOCKE: Objection. 12 THE WITNESS: The literature 13 in part, but yes. Generically 14 that's what I did. 15 BY MR. GOLOMB: 16 Q. Okay. Let's take a look at 17 Exhibit 5, which is the Yale website. 18 (Document marked for 19 identification as Exhibit 20 Borak-5.) 21 MR. LOCKE: I'm asking him 22 if he wanted a break. 23 THE WITNESS: I'm happy with 24 the water. Keep going. I'm</p>
Page 115	Page 117
<p>1 that in this case? 2 A. In which case? 3 Q. In the case that brings you 4 here today? 5 MR. LOCKE: Objection. 6 THE WITNESS: No, no, no, 7 no, no. I was -- I'm sorry. 8 Forgive me. 9 I was not asked a question 10 for the -- of inferring causation 11 from epidemiological evidence. I 12 was not asked to infer causation. 13 And so I did not use Bradford 14 Hill. 15 BY MR. GOLOMB: 16 Q. Right. You were asked to -- 17 to comment on what others had said, and 18 essentially what the evolution of the 19 literature shows us today? 20 MR. HEGARTY: Objection. 21 MR. LOCKE: Objection. 22 THE WITNESS: You -- you 23 misstate what I said. And if you 24 gave me the report I will read it</p>	<p>1 kicking myself privately for the 2 fact that I did not recognize this 3 gentleman earlier. 4 BY MR. GOLOMB: 5 Q. You mentioned before the 6 Yale website. In fact, Exhibit 5 is the 7 Yale website, correct? 8 MR. GOLOMB: Why don't we go 9 off the record and take a 10 five-minute break. 11 THE VIDEOGRAPHER: We're 12 going off the record. The time is 13 10:44. 14 (Short break.) 15 THE VIDEOGRAPHER: We're 16 going back on the record. 17 Beginning of Media File Number 2. 18 The time is 10:52. 19 BY MR. GOLOMB: 20 Q. Doctor, before we broke, I 21 handed you a copy of Exhibit 5, which is 22 your biography from the Yale website. 23 Have you had a chance to take a look at 24 that?</p>

30 (Pages 114 to 117)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 118</p> <p>1 A. Yes, I did.</p> <p>2 Q. And do you agree that's what</p> <p>3 this is?</p> <p>4 A. No. It was. It's an old</p> <p>5 version of it. It's been updated.</p> <p>6 Q. Okay. And how did you</p> <p>7 determine that this is an older version?</p> <p>8 A. The most recent publication</p> <p>9 is 2012. So it's at least six to</p> <p>10 seven years old.</p> <p>11 Q. Okay. Well, I will</p> <p>12 represent to you that I printed this out</p> <p>13 myself a little more than a week ago.</p> <p>14 A. I updated it less than a</p> <p>15 month ago.</p> <p>16 Q. Have you gone --</p> <p>17 A. Unrelated to this particular</p> <p>18 getting together that we have here today.</p> <p>19 Q. And have you been on the</p> <p>20 website in the last week or so?</p> <p>21 A. No.</p> <p>22 Q. Okay. You may want to do</p> <p>23 that just to see if it's been updated.</p> <p>24 A. Yeah. That's important.</p>	<p style="text-align: right;">Page 120</p> <p>1 A. That's correct.</p> <p>2 Q. All right. And other than</p> <p>3 when you went on a month ago or so and</p> <p>4 updated the list of selected</p> <p>5 publications, did you make any other</p> <p>6 edits to the website? As an example, you</p> <p>7 see at the top of the page it says</p> <p>8 "Research Interests"?</p> <p>9 A. I don't remember ever having</p> <p>10 put that there. So I don't -- I don't</p> <p>11 know.</p> <p>12 Q. Okay. Well, if you wanted</p> <p>13 to change your research interests --</p> <p>14 A. Yes.</p> <p>15 Q. -- when you went on the --</p> <p>16 when you went on the website to update</p> <p>17 the selected publications, would you also</p> <p>18 be able to update research interests?</p> <p>19 A. I would have to look to see</p> <p>20 for sure. I don't know. I assume. But</p> <p>21 I don't know.</p> <p>22 Q. All right. And so under</p> <p>23 research interests, it says, "Chemicals</p> <p>24 and drugs," correct?</p>
<p style="text-align: right;">Page 119</p> <p>1 Thank you very much.</p> <p>2 Q. And so you are able to go on</p> <p>3 it yourself to update the information?</p> <p>4 A. There is some method. I've</p> <p>5 got an e-mail somewhere with instructions</p> <p>6 and I filed it. And if I can find it, I</p> <p>7 will do it. Otherwise I'll ask for a new</p> <p>8 copy.</p> <p>9 Q. Okay. And so other than</p> <p>10 going on -- and so when you say you</p> <p>11 updated it, did you do that yourself by</p> <p>12 following the instructions going on, and</p> <p>13 so you're able to edit it yourself?</p> <p>14 A. Yes, that's correct.</p> <p>15 Q. And other than updating</p> <p>16 it -- and I assume that you're referring</p> <p>17 to the date of the most recent selected</p> <p>18 publication on the one that I printed</p> <p>19 out; is that correct?</p> <p>20 A. Well, that's what jumps out</p> <p>21 at me right there. To tell me how old</p> <p>22 this listing is, yes.</p> <p>23 Q. Okay. And that's from list</p> <p>24 shows the last article of 2012?</p>	<p style="text-align: right;">Page 121</p> <p>1 A. That's what it says.</p> <p>2 Q. And then it says --</p> <p>3 underneath that, the next paragraph is,</p> <p>4 "Extensive research description."</p> <p>5 Do you see that?</p> <p>6 A. Yes.</p> <p>7 Q. And it says, "Dr. Borak's</p> <p>8 research interest in the areas of</p> <p>9 environmental and industrial toxicology,</p> <p>10 biological and clinical surveillance of</p> <p>11 toxic exposures, environmental and</p> <p>12 workplace exposure assessments and risk</p> <p>13 assessments of susceptible populations."</p> <p>14 Correct?</p> <p>15 A. That's what it says.</p> <p>16 Q. And then it says your,</p> <p>17 "Recent research projects have focused on</p> <p>18 issues such as the assessment of</p> <p>19 occupational exposures to diesel</p> <p>20 exhaust" --</p> <p>21 A. That's old.</p> <p>22 Q. -- "historical</p> <p>23 reconstruction of silica particulate</p> <p>24 exposures" --</p>

Jonathan Borak, M.D., DABT

Page 122	Page 124
<p>1 A. That's also sort of old, 2 although it's ongoing. 3 Q. -- "respiratory 4 sensitization by reactive monomers" -- 5 A. Yes. That's also old. 6 Q. -- "and the clinical 7 assessment of beryllium-related 8 diseases." 9 A. Yes. That's also old, but 10 true. 11 Q. Okay. And so if I went on 12 the website a week ago rather than 13 getting this, what would it now say? 14 A. I frankly don't know. I'd 15 have to go look. 16 Q. Okay. So you don't remember 17 what the updates were that you made? 18 A. I don't remember. I can 19 tell you that the purpose of this website 20 is in the embrace and the context of the 21 occupational and environmental medicine, 22 and in part so that the applicants to the 23 program know what the faculty members do 24 so that they know what sort of resources</p>	<p>1 Q. And what about this list 2 that which had the most recent one of 3 2012? Were you the one who selected 4 those publications at that time? 5 A. Very possibly, but I don't 6 remember. 7 Q. Okay. And again, this is 8 obviously not meant to be a comprehensive 9 list? 10 A. No. 11 Q. And so, how do you -- how do 12 you -- just generally, how do you decide 13 what goes on the list and what does not 14 go on the list? 15 A. Well, what I -- what I said, 16 but I'll repeat, because it's -- this was 17 meant to indicate the activities, my 18 activities, that were relevant to members 19 of the occupational and environmental 20 medicine program and its applicants. 21 Q. Okay. When -- well, strike 22 that. 23 So who was the TASA Group? 24 A. I have never met the TASA</p>
Page 123	Page 125
<p>1 there are in the program. 2 So, for example, in this 3 case, I would list things that were 4 particularly relevant and salient to 5 occupational and environmental medicine; 6 whereas, by contrast, when I had a web 7 page at the School of Public Health, it 8 would have listed work I did that was 9 more specific and relevant to general 10 public health. 11 But there's nothing -- these 12 are true publications. And this is what 13 I probably listed then. 14 Q. Okay. And again, correct me 15 if I'm wrong. When -- when these 16 selected publications went on -- let's 17 just assume we're dealing with a current 18 list. And I'm not asking specifically 19 about the list as much as I am the 20 process of how things get on a website. 21 You're the one who selects the 22 publications to go on? 23 A. When this was most recently 24 done, yes.</p>	<p>1 Group, but they are a thing that's out 2 there. It's a company of some sort that 3 provides consultation. 4 Q. And do you know what -- what 5 kind of consultation they provide? 6 A. I am here today working for 7 the TASA Group. 8 Q. And how is it that you 9 want -- came -- came here today working 10 with TASA? 11 A. Well, I came here today 12 because Mr. Locke invited me to come here 13 today. That is not what you were asking 14 me. 15 I am working with Mr. Locke 16 because the TASA Group had given him my 17 name and we spoke, and he looked at my 18 resumé and asked me to do some stuff for 19 him. 20 Q. And had you ever worked with 21 the TASA Group before? 22 A. A couple of times. 23 Q. All right. And when did you 24 first work with the TASA Group?</p>

Jonathan Borak, M.D., DABT

Page 126	Page 128
<p>1 A. Well, let me say obviously 2 it was before I met Mr. Locke. I don't 3 know how far in advance of that. 4 The next question you'll ask 5 me is how did I get to meet the TASA 6 Group. The answer's that a colleague 7 friend of mine, a professor in Detroit, 8 called me some years ago, five, not 9 probably more than five, maybe less. And 10 said that he had been approached by this 11 group with whom he had worked to help on 12 a project that was too big for him. And 13 asked me whether I would be interested 14 and I said yes, I would. And so he made 15 the introduction. 16 That original work had to do 17 with compiling a very large number of 18 essentially Workers' Compensation claims 19 in the railroad industry and trying to 20 make some interpretation or analysis of 21 what the data were. It did not entail 22 any litigation that I was aware of, or at 23 least it didn't involve me in any 24 litigation, only in the analysis of a</p>	<p>1 A. Epidemiology permeates my 2 thinking scientifically, so it's hard to 3 differentiate. I don't think that I'm 4 working as specifically an 5 epidemiologist, though I am doing that 6 here, but I'm not here simply as an 7 epidemiologist. 8 Q. Okay. You -- you understand 9 that you, through the lawyers, produced 10 your expert report in this case, correct? 11 A. Yes. 12 Q. And you are identified as an 13 epidemiologist? 14 A. In part, yes. 15 Q. And your -- your opinion, 16 according to your report, is as an 17 epidemiologist, do you understand that? 18 MR. LOCKE: Objection. 19 THE WITNESS: Show me where 20 it says that, sir. 21 BY MR. GOLOMB: 22 Q. Well, do -- do you 23 understand that, yes or no? 24 A. I -- I don't understand what</p>
Page 127	Page 129
<p>1 large amount of data, and I had an 2 infrastructure in my office to do that 3 work, and so I worked with the TASA Group 4 then. 5 And then periodically they 6 have called me and said we have somebody 7 who is looking for an X or a Y or a Z, 8 are you interested, can you help us. And 9 sometimes I say yes, I can help you, and 10 sometimes I say no, I can't help you, 11 because it's not what I do. And other 12 times I've said I'm sorry, I'm too busy, 13 but I'll give you some advice. 14 Q. And when you say they call 15 you for your services as an X, a Y or a 16 Z, what is X, Y and Z? 17 A. It could be as an internist. 18 It could be as a toxicologist. It could 19 be as an occupational environmental 20 physician. And it could be as an 21 epidemiologist. 22 Q. Have you ever served as an 23 epidemiologist for TASA before the talc 24 cases?</p>	<p>1 you've just said to me. 2 Q. Okay. And in the prior case 3 when you were introduced by your friend 4 from Detroit to TASA did you -- you were 5 introduced as what in terms of X, Y or Z? 6 A. I didn't hear the 7 introduction, but I was identified as a 8 physician, an occupational physician, a 9 toxicologist and an epidemiologist. 10 Q. And did you -- did you speak 11 to somebody from TASA before you were 12 engaged? 13 A. I must have. 14 Q. Okay. And you would have 15 worked out a fee arrangement with them, 16 correct? 17 A. The arrangement I had with 18 them for fees, are you asking what is it? 19 Yes, I would -- 20 Q. No, I'm asking -- I'm asking 21 a very specific question about your 22 conversations with -- with TASA five 23 years ago when you were first introduced 24 to them.</p>

Jonathan Borak, M.D., DABT

Page 130	Page 132
<p>1 A. Fine. Ask me again.</p> <p>2 Q. What was the fee</p> <p>3 arrangement?</p> <p>4 A. I sent them my invoices and</p> <p>5 they billed the client.</p> <p>6 Q. And the invoices that you --</p> <p>7 that you bill, do they -- they include</p> <p>8 the number of hours that you work?</p> <p>9 A. Yes, that's correct.</p> <p>10 Q. And is -- is the billing</p> <p>11 that you provided to them in this project</p> <p>12 five years ago, similar -- similar to the</p> <p>13 bills that you provided in this case?</p> <p>14 A. The answer is yes, and I'm</p> <p>15 not sure if five years is correct. But</p> <p>16 I'm not disagreeing. I understand what</p> <p>17 you -- yes, it's the same process. And</p> <p>18 then what TASA does with the bills, I</p> <p>19 don't know.</p> <p>20 Q. And do -- are your -- your</p> <p>21 bills identify the number of hours that</p> <p>22 you worked?</p> <p>23 A. Yes, that's correct. And</p> <p>24 whomever else works on the project.</p>	<p>1 the hourly rate in the case, whether it</p> <p>2 was five years ago, more or less, what</p> <p>3 was your hourly rate in that case?</p> <p>4 A. Which case?</p> <p>5 Q. The case that your friend</p> <p>6 from Detroit introduced you to the -- to</p> <p>7 TASA.</p> <p>8 A. I think it is whatever it is</p> <p>9 today.</p> <p>10 Q. Which is what?</p> <p>11 A. I think probably something</p> <p>12 in the range of 550, to 600, I'm not</p> <p>13 sure.</p> <p>14 Q. Okay. And so if we looked</p> <p>15 at your invoices that you provide on</p> <p>16 Jonathan Borak stationary that you</p> <p>17 provide to -- to TASA? So you -- let me</p> <p>18 just be clear. Before -- as a</p> <p>19 background, you -- your bills go to TASA,</p> <p>20 not to Mr. Locke?</p> <p>21 A. That's correct.</p> <p>22 Q. All right. And so if we</p> <p>23 looked at your invoices, it would -- it</p> <p>24 would show the number of hours, correct?</p>
Page 131	Page 133
<p>1 Q. And the -- and the bills</p> <p>2 that you provide to TASA, are they on</p> <p>3 Jonathan Borak & Company letterhead?</p> <p>4 A. Yes, of course.</p> <p>5 Q. And is there a calculation</p> <p>6 of your number of hours on -- on the</p> <p>7 Jonathan Borak bills that you provide to</p> <p>8 TASA, is there a calculation of the bills</p> <p>9 times your hourly rate, or just the</p> <p>10 hours?</p> <p>11 A. I don't -- no, no, I think</p> <p>12 it's both probably. And the hourly</p> <p>13 rate -- at least indicates, for example I</p> <p>14 have a librarian. I think that her time</p> <p>15 goes at something like in the range of 45</p> <p>16 to 60 an hour. I don't actually</p> <p>17 remember. And so that is broken out.</p> <p>18 And I have had other people</p> <p>19 who have worked with me on some of these</p> <p>20 projects, including this one at some</p> <p>21 point. And so it breaks out individuals,</p> <p>22 and it says how many hours were spent and</p> <p>23 what was the hourly rate.</p> <p>24 Q. Okay. And -- and what was</p>	<p>1 A. Yes.</p> <p>2 Q. And then it would be times</p> <p>3 an hourly rate for you, times an hourly</p> <p>4 rate for those hours identified for your</p> <p>5 librarian, and then there would be a</p> <p>6 total number of hours and a total dollar</p> <p>7 amount?</p> <p>8 A. Essentially.</p> <p>9 Q. Okay. And I'm assuming you</p> <p>10 don't wait until the case is over to</p> <p>11 bill, correct?</p> <p>12 A. Yes, I do not.</p> <p>13 Q. You bill on a monthly basis?</p> <p>14 A. Yes, I do.</p> <p>15 Q. And so, each month would</p> <p>16 have a bill that includes the number of</p> <p>17 hours, times an hourly rate for you,</p> <p>18 times an hourly rate for your librarian?</p> <p>19 A. And whomever else, yes.</p> <p>20 Q. Okay. And that bill -- that</p> <p>21 would then go to TASA?</p> <p>22 A. Correct.</p> <p>23 Q. And does the bills that you</p> <p>24 provide, do the bills that you provide to</p>

Jonathan Borak, M.D., DABT

Page 134	Page 136
<p>1 TASA, do they break down the details of 2 what you did that month? 3 A. It indicates day by day. 4 Q. Okay. And is there a 5 description of what you did for that hour 6 or three hours or four hours? 7 A. It may indicate review of 8 topics, or phone calls, yes. 9 Q. Okay. And then as you 10 indicated earlier, once you send the 11 bills to TASA, you don't know what 12 happens then with those bills. You just 13 know that you get a check? 14 MR. HEGARTY: Objection. 15 THE WITNESS: Well, that's 16 simplistic, but yes. 17 BY MR. GOLOMB: 18 Q. Well, I want to -- I don't 19 want to know implicitly. I want to know 20 factually. Is that what happens? 21 A. I said simplistically. I 22 don't know what the process is between. 23 Eventually, yes, a check does arrive. 24 Q. Okay. I didn't ask you what</p>	<p>1 Q. Did you instruct anybody in 2 your office to delete them? 3 A. No. 4 Q. All right. So and nobody 5 would delete them without your 6 instruction, correct? 7 A. Yes. 8 Q. That's correct? 9 A. Yes, that's correct. 10 Q. So going back to my 11 question. My question was then, your 12 office prepares these detailed invoices 13 on Jonathan Borak & Company stationery, 14 it's got the number of hours for the 15 month, times your hourly rate for that 16 month, times your librarian's hourly rate 17 for that month. There's a dollar figure. 18 And then you send the bill to TASA. 19 You don't know what happens 20 with the bill after that, and you're not 21 involved with the bill after that. You 22 know, at some point you get a check? 23 MR. HEGARTY: Objection. 24 MR. LOCKE: Objection.</p>
Page 135	Page 137
<p>1 the process was in between. My question 2 was, very specifically -- do you prepare 3 the bills yourself? 4 A. No. 5 Q. Okay. How do you -- how do 6 you -- who does prepare the bill? 7 A. There is somebody who does 8 that bookkeeping part of my work. 9 Q. Okay. And how do they get 10 the information to bill it, do you keep 11 time slips? 12 A. Yes. 13 Q. Do you keep time slips in 14 writing or do you keep time slips on the 15 computer? 16 A. On the computer. 17 Q. And if we wanted to see 18 those time slips, are they still 19 available? 20 A. I don't know. But probably. 21 Q. Okay. You didn't delete 22 them, did you? 23 A. I am not aware that I 24 deleted them.</p>	<p>1 THE WITNESS: I do not know 2 the mechanics of the process at 3 TASA. 4 BY MR. GOLOMB: 5 Q. Right. And is the -- is 6 the -- do you ever see the TASA bills? 7 A. No. 8 Q. Do you know what TASA does 9 with their bills? 10 A. What do you mean? 11 Q. TASA, I assume, wants to get 12 paid? 13 A. I assume they do. 14 Q. All right. So the check 15 that you receive, is that a check from 16 TASA? 17 A. Yes. It's a check from 18 TASA. 19 Q. So you don't get a check 20 from Mr. Locke or Mr. Locke's office? 21 A. I don't believe I have ever 22 gotten a check from Mr. Locke or 23 Mr. Locke's office. 24 Q. In this case, you don't --</p>

Jonathan Borak, M.D., DABT

Page 138	Page 140
<p>1 you don't get a check from an insurance 2 company? 3 A. I don't know what insurance 4 companies, no. 5 Q. My question was, you don't 6 get a check from an insurance company? 7 A. Not in this litigation. 8 Q. Right. Right. You get your 9 check directly from TASA? 10 A. That's correct. 11 Q. By the way, do you know 12 whether or not, one way or the other, 13 whether or not TASA publishes a book of 14 the experts who they use? 15 MR. HEGARTY: Objection. 16 THE WITNESS: I do not. 17 BY MR. GOLOMB: 18 Q. Okay. Did you ever -- did 19 you ever send one of your CVs to TASA? 20 A. Oh, yes. 21 Q. Okay. But you don't know 22 whether or not they publish a book of 23 their experts? 24 A. No, I don't know.</p>	<p>1 interesting that you raise it. It 2 doesn't surprise me, but I don't 3 know. 4 BY MR. GOLOMB: 5 Q. Would you care one way or 6 the other? 7 A. I would care if anybody was 8 saying false things about me. 9 Q. Well, would you -- would you 10 care whether or not TASA was out there 11 offering your services to lawyers as a 12 consultant on an hourly basis? 13 MR. LOCKE: Objection. 14 MR. HEGARTY: Objection. 15 THE WITNESS: I've assumed 16 that's what they were doing. 17 Otherwise, I don't think I would 18 be getting phone calls from them. 19 I get them, not many, but 20 occasionally. 21 BY MR. GOLOMB: 22 Q. Okay. Do you know anything 23 about who TASA serves? 24 A. The only person besides me</p>
Page 139	Page 141
<p>1 Q. Okay. Have you ever 2 advertised your services as a consultant? 3 A. No. 4 Q. In any form or fashion? 5 A. I've always thought that I 6 was self-promoting in a certain sense 7 when I published articles in the 8 peer-reviewed scientific literature. But 9 that's not what you mean, I'm sure. 10 Q. No. I mean -- I mean 11 whether or not you have paid for an 12 advertisement, as an example, in one of 13 these publications offering your services 14 as an expert. 15 A. No, I've never done that. 16 Q. All right. If TASA was 17 publishing your services and offering 18 your services as an expert in a book that 19 they publish and send out to corporations 20 or lawyers, is that something that you'd 21 want to know? 22 MR. LOCKE: Objection. 23 MR. HEGARTY: Objection. 24 THE WITNESS: It's</p>	<p>1 that I know that has worked with TASA was 2 my colleague in Detroit. 3 Q. Okay. So you never did -- 4 as an example, you never did any 5 independent research to find out who TASA 6 was and what kind of company they were 7 and what their reputation was since they 8 were offering your services as an expert? 9 MR. HEGARTY: Objection. 10 MR. LOCKE: Objection. 11 THE WITNESS: I was 12 introduced to them by a man whom I 13 held in high regard. I regarded 14 that as being a due diligence. 15 BY MR. GOLOMB: 16 Q. Okay. When was the first 17 time that you were ever contacted to 18 serve as a consultant in the talc 19 litigation? 20 A. I don't know the date. But 21 it probably was in 2016 or 2017. It's 22 possible. I'm looking to Mr. Locke to 23 see whether he remembers. I don't 24 remember.</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 142</p> <p>1 Q. Okay. I'm pretty sure 2 Mr. Locke would tell you, even if he 3 does, he's not allowed to answer the 4 question on the record. 5 A. In that case, I was looking 6 to see whether he smiled or grimaced. 7 Q. Okay. So let me just 8 represent to you that I have received on 9 two separate occasions invoices. Some 10 are invoices from the TASA Group. Some 11 are invoices from Jonathan Borak & 12 Company. I have -- the first set of 13 bills that I have began in May of 2017, 14 and that is a set of invoices that are 15 marked for identification or marked as an 16 exhibit as Exhibit 3, which I will show 17 you at some point. 18 And then yesterday, I 19 received another set of invoices that 20 begin in August of 2015 that I saw for 21 the first time late last evening. 22 So while I have a hardcopy 23 of it, and we'll -- at some point we'll 24 show you that on the Elmo, and I don't</p>	<p style="text-align: right;">Page 144</p> <p>1 BY MR. GOLOMB: 2 Q. Okay. This was also an 3 invoice that you were questioned on by 4 Mr. Greenback back in June of 2017 in 5 your earlier deposition in the Oules 6 case. Do you remember Mr. Green asking 7 you about invoices from that case? 8 A. No, but I remember 9 Mr. Green. 10 Q. Okay. Everybody remembers 11 Mr. Green. 12 A. Yeah, yeah, no, he is a 13 charming fellow. He's got a nice smile. 14 Q. Yes, yes, he is. And he 15 knows good pizza when he sees it. 16 A. Well, then he's in the right 17 town. 18 Q. So I want to be clear that 19 in -- in this kind of the series of 20 questions that I'm going to be asking 21 you, I don't want to know any -- anything 22 about any conversations you may have had 23 with Mr. Locke or any of the lawyers in 24 Mr. Locke's office, okay?</p>
<p style="text-align: right;">Page 143</p> <p>1 have copies for everybody else, because 2 we just got it, and I didn't have time to 3 make the copies. Okay. 4 I give you that as a way of 5 background because you'll know why there 6 are copies for you on some things and 7 others, but I also tell you that because 8 I want to know if the fact that the first 9 entry on what will be Exhibit 30 that I 10 received last night has -- the earliest 11 date is August 24th of 2015, and whether 12 or not that helps refresh your 13 recollection as to when you were first 14 contacted. 15 A. I -- I'm going to -- 16 MR. LOCKE: Objection. You 17 can answer. 18 THE WITNESS: I will tell 19 you I don't have any specific 20 recall. If you have such a 21 document that I will accept 22 pending my review of it that 23 that's correct, and that was the 24 first invoice, I don't remember.</p>	<p style="text-align: right;">Page 145</p> <p>1 A. Okay. 2 Q. You understand that that's 3 privileged, correct? 4 A. Yes. 5 Q. All right. So if we assume 6 for the sake of discussion that the first 7 contact that you had in the talc 8 litigation was back in August of 2015, 9 how were you contacted? 10 A. By phone. 11 Q. By whom? 12 A. I assume -- I don't 13 remember. Do you want me to -- to 14 assume? I assume it was a call from 15 somebody at TASA. But I don't remember. 16 Q. Okay. And tell me about 17 that conversation. 18 A. I don't remember it. 19 Q. You don't -- you 20 don't remember anything about the 21 conversation? 22 A. I can -- I can conjecture, 23 but I don't remember. 24 Q. Well, it's -- as long as</p>

37 (Pages 142 to 145)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 146</p> <p>1 your conjecture is not pure speculation, 2 tell me what the -- what the conversation 3 was. 4 A. Well, it's not pure 5 speculation. 6 MR. LOCKE: Objection. 7 BY MR. GOLOMB: 8 Q. Go ahead. 9 A. I presume that somebody 10 would have called me and said we have a 11 client who is interested in the following 12 problem, would you be interested in 13 speaking with him. 14 Q. Okay. And -- and that 15 problem was, obviously, was the -- the 16 claims that talc was cause -- the 17 perineal use of talc was causing ovarian 18 cancer, correct? 19 MR. HEGARTY: Objection. 20 MR. LOCKE: Objection. 21 THE WITNESS: It probably 22 had to do with the association 23 between talcum powder and ovarian 24 cancer.</p>	<p style="text-align: right;">Page 148</p> <p>1 of talk, what does that mean? 2 A. I mean I was aware that in 3 2010 IARC said there was a possibility. 4 Q. Okay. Do you -- do you read 5 the IARC monographs on a regular basis? 6 A. When you say on a regular 7 basis, I often read them. And I look to 8 see what is coming out, so that I know 9 what they have been dealing with, but I 10 don't subscribe to them. 11 Q. Okay. Okay. So you -- but 12 in 2015 -- as you sat there in 2015 and 13 you were contacted by TASA, you 14 remembered that IARC had done something 15 on talc back in 2010? 16 A. Not that specifically. 17 Q. Then what -- what did you 18 recall? 19 A. I was aware that it had been 20 an issue, that talc had been looked at by 21 IARC. 22 Q. Okay. And did you have any 23 opinion on it at that point? 24 MR. HEGARTY: Objection.</p>
<p style="text-align: right;">Page 147</p> <p>1 BY MR. GOLOMB: 2 Q. Okay. And you obviously 3 said that you would be interested? 4 A. I obviously said I was 5 interested in speaking with this person, 6 yes. 7 Q. And as of that -- as of that 8 time, in August of 2015, what -- what is 9 it about your educational background, 10 your professional background, that -- 11 that you felt, yeah, I may be the guy for 12 this? 13 A. I had done a lot of work on 14 particulates. I had written on 15 carcinogenicity but not on ovarian 16 cancer. I was interested in 17 environmental exposures and this seemed 18 to fit into that area of interest. 19 Q. Okay. And at that point had 20 you read anything about the association 21 between talc and ovarian cancer? 22 A. I was aware that there was 23 talk of such an association. 24 Q. When you say you were aware</p>	<p style="text-align: right;">Page 149</p> <p>1 THE WITNESS: By opinion, 2 you mean -- 3 BY MR. GOLOMB: 4 Q. Whether or not talc was 5 causing the ovarian cancer. 6 A. I -- I had no opinion at 7 that time. 8 Q. All right. And had you 9 read -- did you read the IARC monogram -- 10 monograph before August of 2015? 11 A. I don't remember. I have 12 certainly read it since then. 13 Q. Well, you read that once you 14 were a paid consultant in this case. 15 MR. LOCKE: Objection. 16 MR. HEGARTY: Objection. 17 THE WITNESS: I read that 18 after I became involved in this 19 case, but I probably read parts, 20 or was aware of it. But I don't 21 remember. 22 BY MR. GOLOMB: 23 Q. Okay. Had you read any -- 24 any of the other literature on the</p>

Jonathan Borak, M.D., DABT

Page 150	Page 152
<p>1 association between talc and ovarian 2 cancer before August of 2015? 3 MR. HEGARTY: Objection. 4 THE WITNESS: If I had, it 5 didn't stick specifically in my 6 mind. I couldn't give you the 7 name of the author who wrote it. 8 BY MR. GOLOMB: 9 Q. Okay. And so when you -- 10 you then said that yes, I'll be 11 interested in possibly getting involved. 12 What -- what happened next? 13 How -- how do you go from a 14 phone call with TASA to having a fee 15 agreement to act as a -- as a paid 16 consultant? 17 MR. HEGARTY: Objection. 18 THE WITNESS: I actually 19 don't remember the specifics, but 20 at some point Mr. Locke indicated 21 his concern was -- 22 BY MR. GOLOMB: 23 Q. Don't -- don't tell me about 24 conversations.</p>	<p>1 A. I think I had several 2 conversations. So I think next was 3 another conversation. 4 Q. All right. And -- and that 5 was in the Oules case, correct? If -- 6 MR. LOCKE: You can answer 7 if you can. 8 BY MR. GOLOMB: 9 Q. Or let me -- let me back up. 10 Or maybe it wasn't 11 specifically about the Oules case, 12 Mr. Locke just wanted you to generally 13 opine on the association between talc and 14 ovarian cancer without giving you the 15 name of the case. 16 MR. LOCKE: Objection. 17 THE WITNESS: As I recall 18 it, I was not involved in any 19 particular case. 20 BY MR. GOLOMB: 21 Q. Okay. And then at -- at 22 some point you said yes, I'll be 23 involved. And you worked out an 24 arrangement of what your -- what your</p>
Page 151	Page 153
<p>1 A. Sorry. 2 MR. LOCKE: Yeah. 3 BY MR. GOLOMB: 4 Q. Let me back up -- 5 A. At some point I 6 understood -- 7 Q. Let -- let me -- let me back 8 up. And I -- I want to -- I want -- I 9 want to ask a very specific question, 10 because I want you to be careful you're 11 not telling me conversations with 12 Mr. Locke. 13 So once TASA contacted you 14 and you said yes, I'll be interested, 15 what -- in -- in talking with somebody, 16 was that somebody Mr. Locke? 17 A. It was either Mr. Locke or 18 Mr. Locke's associate. 19 Q. Okay. Do you remember the 20 name of Mr. Locke's associate? 21 A. I'm sorry, I don't. 22 Q. Okay. And then without 23 telling me about any of the 24 conversations, tell me what you did next.</p>	<p>1 fees would be, how you would bill, and 2 what your job was in this particular 3 case, right? 4 MR. LOCKE: Objection. 5 THE WITNESS: I -- I had -- 6 I've got to learn to be quiet for 7 a minute. 8 BY MR. GOLOMB: 9 Q. I'm sorry? 10 A. I say I have to learn to be 11 quiet for the first 12 seconds. 12 I -- I had no conversation 13 with Mr. Locke about finances. 14 Q. That all -- that was all 15 done with TASA? 16 A. I had no conversation with 17 Mr. Locke about finances. 18 Q. My -- my question was, that 19 was all done with TASA; is that correct? 20 A. My conversations were -- 21 about money were with TASA. 22 Q. Right. Your -- your -- 23 without telling me the specifics of the 24 conversation, the -- the parameters of</p>

Jonathan Borak, M.D., DABT

Page 154	Page 156
<p>1 your engagement, that's -- was --</p> <p>2 that's -- was with Mr. Locke, correct?</p> <p>3 A. By parameters you mean --</p> <p>4 Q. Of what you were going to</p> <p>5 do.</p> <p>6 A. We -- we spoke about the --</p> <p>7 the issue, yes.</p> <p>8 Q. Okay. So, let me just show</p> <p>9 you what I've marked as Exhibit 30.</p> <p>10 (Document marked for</p> <p>11 identification as Exhibit</p> <p>12 Borak-30.)</p> <p>13 BY MR. GOLOMB:</p> <p>14 Q. And, again, I just saw this</p> <p>15 for the first time last night, so I don't</p> <p>16 have copies of it.</p> <p>17 And we'll take time for</p> <p>18 everybody to look at this, but it is</p> <p>19 essentially 30-plus pages of invoices</p> <p>20 both from TASA and from Jonathan Borak &</p> <p>21 Company. And they cover the period of</p> <p>22 August 24, 2015, through April 10th of</p> <p>23 2017. Okay.</p> <p>24 A. Okay.</p>	<p>1 in connection with the Oules</p> <p>2 litigation. You know, I'm</p> <p>3 confident -- I don't believe that</p> <p>4 every person in this room</p> <p>5 necessarily was part of all of</p> <p>6 those. But many of the parties</p> <p>7 were here, and in fact I recognize</p> <p>8 at least two lawyers who were at</p> <p>9 the earlier deposition, two</p> <p>10 lawyers for the plaintiffs.</p> <p>11 So why don't I just sort of</p> <p>12 briefly pass this around so</p> <p>13 everybody can see roughly what it</p> <p>14 is. But J&J has seen it before.</p> <p>15 And on -- you can ask him whatever</p> <p>16 questions you want about it.</p> <p>17 MR. GOLOMB: Okay. That's</p> <p>18 fine. I just want to -- just --</p> <p>19 not that it's really -- it doesn't</p> <p>20 really matter. It's -- but</p> <p>21 it's -- I just want to correct the</p> <p>22 record. It was not in the New</p> <p>23 Jersey litigation. It was in the</p> <p>24 D.C. litigation.</p>
Page 155	Page 157
<p>1 MR. GOLOMB: And let's go</p> <p>2 off the video record, please.</p> <p>3 MR. LOCKE: What for?</p> <p>4 MR. GOLOMB: So that</p> <p>5 everybody can look at these</p> <p>6 invoices.</p> <p>7 MR. LOCKE: Well, first, is</p> <p>8 that a page of this?</p> <p>9 MR. GOLOMB: No, this is</p> <p>10 another page of another exhibit.</p> <p>11 MR. LOCKE: Okay. Let me --</p> <p>12 I'm not sure that everybody needs</p> <p>13 to look at it. Let me explain</p> <p>14 why.</p> <p>15 This was produced -- and I</p> <p>16 say this because you're saying</p> <p>17 that the first time you saw it was</p> <p>18 last night.</p> <p>19 I'm pretty sure that the</p> <p>20 first portion of this was produced</p> <p>21 in connection with the New Jersey</p> <p>22 Atlantic County cases.</p> <p>23 I think that there was</p> <p>24 another portion that was produced</p>	<p>1 MR. LOCKE: Okay. I know --</p> <p>2 I know that Dr. Borak was offered</p> <p>3 in the New Jersey litigation. He</p> <p>4 drafted and produced a report in</p> <p>5 that litigation.</p> <p>6 MR. GOLOMB: That's fine.</p> <p>7 BY MR. GOLOMB:</p> <p>8 Q. So the other thing that I</p> <p>9 did last night when I got this is I --</p> <p>10 MR. GOLOMB: Can we turn on</p> <p>11 the Elmo.</p> <p>12 BY MR. GOLOMB:</p> <p>13 Q. I took the bills, and I</p> <p>14 added them up. And these are the bills,</p> <p>15 the monthly bills that you produced from</p> <p>16 August 24, 2015, through April 10th of</p> <p>17 2017. And those bills totaled</p> <p>18 \$289,701.50.</p> <p>19 MR. LOCKE: It's sideways</p> <p>20 for us, and we can't see the</p> <p>21 bottom.</p> <p>22 BY MR. GOLOMB:</p> <p>23 Q. Well, I'm going to --</p> <p>24 MR. LOCKE: Okay.</p>

40 (Pages 154 to 157)

Jonathan Borak, M.D., DABT

Page 158	Page 160
<p>1 BY MR. GOLOMB: 2 Q. There you -- and this is my 3 handwriting. I apologize. And you can 4 see the total there of \$289,701.50. 5 And I'm handing you 6 Exhibit 28. 7 (Document marked for 8 identification as Exhibit 9 Borak-28.) 10 BY MR. GOLOMB: 11 Q. Which is the monthly totals. 12 Is that generally consistent 13 with your recollection of how much you 14 received to act as a consultant in this 15 litigation for that period of time? 16 MR. LOCKE: Whoa. Let me 17 just say, when you say this 18 litigation. 19 MR. GOLOMB: The talc 20 litigation. 21 MR. LOCKE: Okay. All of 22 the talc litigation, whether it's 23 MDL, D.C., New Jersey? 24 MR. GOLOMB: Well, this is</p>	<p>1 2015, you -- you have received almost 2 \$600,000 to serve as an expert in this 3 litigation. 4 MR. HEGARTY: Objection. 5 MR. LOCKE: Objection. 6 BY MR. GOLOMB: 7 Q. Is that correct? 8 A. I provided a number of 9 consulting services to Mr. Locke. I'm 10 surprised by that number. 11 Q. All right. And but that -- 12 those consulting services that you 13 provided did not include doing a 14 meta-analysis, because you never did 15 that, correct? 16 MR. LOCKE: Objection. 17 THE WITNESS: I did not do a 18 meta-analysis. 19 BY MR. GOLOMB: 20 Q. You certainly didn't conduct 21 a case-control study of your own, 22 correct? 23 A. I did not conduct a 24 case-control study of my own.</p>
Page 159	Page 161
<p>1 the talc litigation from your 2 services between August of 2015 3 and April of 2017. 4 THE WITNESS: I don't have 5 the number specifically in mind. 6 This is not completely out of 7 line. 8 BY MR. GOLOMB: 9 Q. Okay. We'll go into more 10 detail about this later. And then, 11 you've also produced additional bills 12 from April of 2017 through February of 13 2019, correct? 14 A. Probably. 15 Q. And those bills that are 16 generated are an additional \$288,000? 17 A. Is that right? 18 Q. Yeah. We'll go through it. 19 If you want to see that now, we can do it 20 now. 21 A. No, no, no. I do -- I'm 22 not -- you can show it to me or you can 23 not. I'm just surprised by that number. 24 Q. So your -- since August of</p>	<p>1 Q. You didn't conduct a cohort 2 study certainly? 3 A. I did not perform a cohort 4 study of my own. 5 Q. And you didn't perform a 6 Bradford Hill analysis? 7 A. I did not undertake a 8 Bradford Hill analysis. 9 Q. Okay. And we can go through 10 the specifics of what other experts who 11 in fact did do a meta-analysis, in fact 12 did do a Bradford Hill analysis in this 13 case, looked at data in which ways that 14 you never looked at that data, who got a 15 fraction of what you received in this 16 case. Were you aware of that? 17 MR. HEGARTY: Objection. 18 MR. LOCKE: Objection. 19 THE WITNESS: Not 20 specifically. 21 BY MR. GOLOMB: 22 Q. Okay. You've indicated in 23 the attachments to your report that you 24 read the depositions of Dr. Siemiatycki.</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 162</p> <p>1 You've read the deposition of 2 Dr. Smith-Bindman. You read the 3 deposition of Dr. Singh. You read the 4 deposition of Dr. McTiernan. Do you 5 remember that? 6 A. Yes. 7 Q. Okay. And so -- and those 8 various experts who did do meta-analysis, 9 who did Bradford Hill, they, combined, 10 didn't receive what you received in this 11 case. 12 MR. LOCKE: Objection. 13 MR. HEGARTY: Objection. 14 BY MR. GOLOMB: 15 Q. Are you aware of that? 16 MR. LOCKE: Objection. 17 MR. HEGARTY: Objection. 18 THE WITNESS: I'm not aware 19 of it. I'm not aware that they 20 worked as long, as many years on 21 the issue. 22 BY MR. GOLOMB: 23 Q. You're not aware whether 24 they worked as -- the number of years?</p>	<p style="text-align: right;">Page 164</p> <p>1 A. That's correct. 2 Q. All right. And so, while 3 you may have known that you were going to 4 be -- we -- well, strike that. 5 The -- the -- without 6 telling me the specifics of the 7 conversation, were you aware that you 8 were going to be deposed before you 9 produced your report? 10 And I don't mean that you 11 were going to be deposed before you 12 produced the report, but before you 13 produced the report, at some time in the 14 future, you were going to be deposed? 15 A. I expected that it was a 16 possibility. 17 Q. And had you already provided 18 dates for the deposition before your 19 report was actually produced? 20 A. It is possible that I was 21 told the time span when it might happen, 22 but I don't recall the particulars. 23 Q. And what -- with whom -- I 24 don't want to know the specifics of any</p>
<p style="text-align: right;">Page 163</p> <p>1 A. Yes. 2 MR. GOLOMB: That's the 3 original of 28. 4 And this is the original of 5 30. 6 BY MR. GOLOMB: 7 Q. Let's take a look at your 8 report. But let me just ask you this. 9 So first of all, when did you first learn 10 that you were going to be deposed in this 11 case? 12 MR. LOCKE: When you say 13 this case, are you talking about 14 the MDL? 15 MR. GOLOMB: In the MDL. 16 THE WITNESS: I don't 17 recall. 18 BY MR. GOLOMB: 19 Q. Well, was it a month ago, 20 two months ago, three months ago? 21 A. At some point I was asked to 22 provide available dates to Mr. Locke. 23 Q. Okay. Well, your report was 24 dated February 25th, correct?</p>	<p style="text-align: right;">Page 165</p> <p>1 conversation. But I just want to know 2 who it was that you had the -- the first 3 conversation with about your deposition 4 here today. 5 A. You mean today's deposition? 6 Q. Yeah. 7 A. It was most probably with 8 Mr. Locke, but I don't recall. 9 Q. And was that in -- by phone 10 or in person? 11 A. It would have been by phone, 12 probably. 13 Q. And did you -- was -- how 14 long did that conversation last? 15 A. I have no recall. 16 Q. Okay. Is that something you 17 would have billed for? 18 A. Probably not. But I don't 19 know. 20 Q. If you had a -- do you 21 understand what I mean if I -- if I refer 22 to a conversation as -- to discuss 23 logistics versus substance? 24 A. I sort of know what you</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 166</p> <p>1 mean, but I'm not sure that I do.</p> <p>2 Q. Okay. Logistics, they want</p> <p>3 to take your deposition, why don't you</p> <p>4 look at your calendar, get me some dates,</p> <p>5 I'll get -- and get back to me.</p> <p>6 A. That's logistics.</p> <p>7 Q. That's logistics.</p> <p>8 A. Okay.</p> <p>9 Q. Dates is talking about the</p> <p>10 substance of -- of your deposition</p> <p>11 testimony, what they may ask, what you</p> <p>12 should review?</p> <p>13 A. And that's an example of?</p> <p>14 Q. That's substance.</p> <p>15 A. Substance, okay.</p> <p>16 Q. Okay?</p> <p>17 A. Yes.</p> <p>18 Q. So if you had a -- if you</p> <p>19 had a logistics question, is that</p> <p>20 something that you would bill for?</p> <p>21 A. No.</p> <p>22 Q. If you had a substance</p> <p>23 question, is that something you would</p> <p>24 bill for?</p>	<p style="text-align: right;">Page 168</p> <p>1 Q. Anybody else?</p> <p>2 A. Well, not participating in</p> <p>3 that meeting.</p> <p>4 Q. Okay. You hesitated. What</p> <p>5 do you mean?</p> <p>6 A. I -- well, I mean, my</p> <p>7 librarian was there, my office manager,</p> <p>8 people like that, that's not what you're</p> <p>9 asking me. My wife came in at some point</p> <p>10 and said hello to him.</p> <p>11 Q. Okay. Did any of those</p> <p>12 other people participate in the substance</p> <p>13 of the meeting?</p> <p>14 A. No.</p> <p>15 Q. All right. And how long did</p> <p>16 the -- the telephone conversations take</p> <p>17 place?</p> <p>18 A. I specifically do not</p> <p>19 remember.</p> <p>20 Q. Is -- would you have billed</p> <p>21 for those conversations?</p> <p>22 A. If they were short</p> <p>23 conversations, no. If Mr. Locke said I'd</p> <p>24 like to talk to you for an hour or two</p>
<p style="text-align: right;">Page 167</p> <p>1 A. It would depend on --</p> <p>2 Q. I'm sorry, a substance</p> <p>3 conversation.</p> <p>4 A. It would depend upon the</p> <p>5 length of time and whether it required</p> <p>6 preparation.</p> <p>7 Q. Okay. How many</p> <p>8 conversations, either by phone or in</p> <p>9 person, did you have to prepare for your</p> <p>10 deposition?</p> <p>11 A. I don't recall a specific</p> <p>12 number.</p> <p>13 Q. Generally.</p> <p>14 A. Mr. Locke was in New Haven</p> <p>15 for two half days. And we may have</p> <p>16 spoken another two or three times. I</p> <p>17 spoke with him last night, but that was</p> <p>18 largely to say are you comfortable.</p> <p>19 Q. The -- the two in -- the two</p> <p>20 in-person meetings, where did they take</p> <p>21 place?</p> <p>22 A. In my office.</p> <p>23 Q. And who was there?</p> <p>24 A. Me and he.</p>	<p style="text-align: right;">Page 169</p> <p>1 hours, then yes.</p> <p>2 Q. Did you have hour,</p> <p>3 two-hour-long conversations with</p> <p>4 Mr. Locke?</p> <p>5 A. It's possible, but I don't</p> <p>6 specifically remember.</p> <p>7 Q. Okay. Now, when you -- when</p> <p>8 you looked at, as brief as it was, when</p> <p>9 you looked at the bills pre April of</p> <p>10 2017, you can see that there are not only</p> <p>11 TASA bills, but bills from Jonathan</p> <p>12 Borak & Company, correct?</p> <p>13 A. I haven't looked, but I</p> <p>14 accept what you say. I don't</p> <p>15 understand -- that looked more like mine.</p> <p>16 Okay. Yes, I see some that</p> <p>17 look like they are mine. I...</p> <p>18 Q. Now, have you ever -- have</p> <p>19 you ever seen those TASA bills before</p> <p>20 June 8, 2017, when Mr. Green took your</p> <p>21 deposition?</p> <p>22 A. No.</p> <p>23 Q. Okay. Have you seen the</p> <p>24 TASA bills post April of 2017?</p>

Jonathan Borak, M.D., DABT

Page 170	Page 172
<p>1 A. Not until you put them here 2 on the table. 3 Q. Okay. And I would assume, 4 correct me if I am wrong, that like that, 5 that period of time from 2015 through 6 April of 2017, that since 2017, there are 7 also Jonathan Borak & Company, bills? 8 A. Yes. 9 Q. Okay. They haven't been 10 produced to us. 11 MR. LOCKE: That's 12 incorrect. 13 MR. GOLOMB: When were they 14 produced? 15 MR. LOCKE: Last week after 16 we got your notice of deposition. 17 MR. GOLOMB: Okay. Who were 18 they produced to? 19 MR. LOCKE: Mr. Green. And 20 Leigh O'Dell, Michelle Parfitt. 21 MR. GOLOMB: Okay. 22 MR. LOCKE: And a handful of 23 other -- Chris Tisi. 24 MR. GOLOMB: All right.</p>	<p>1 were two meetings and three or so phone 2 conversations? 3 A. That sounds right. I mean, 4 about that. 5 Q. Okay. So let -- let's take 6 a look at your report which we've marked 7 as Exhibit 7. 8 (Document marked for 9 identification as Exhibit 10 Borak-7.) 11 THE WITNESS: Thank you. 12 BY MR. GOLOMB: 13 Q. And this is a two-sided copy 14 of your report Pages 1 through 13, which 15 is the -- on Page 13, is your -- your 16 signature? 17 MR. HEGARTY: Mine goes 1 18 through 14. 19 MR. LOCKE: Yeah, it goes 20 through 14, and it -- 21 MR. GOLOMB: Well, it's 22 two-sided because -- so it goes on 23 to the next attachment. But 24 the -- the report is Pages 1</p>
Page 171	Page 173
<p>1 Well, during a break we'll -- I 2 have not seen those bills. And so 3 I have the TASA bills from 4 April 26, 2017, through 5 February 25, 2019. 6 BY MR. GOLOMB: 7 Q. Have you generated a bill 8 since 2 -- since February 25, 2019? 9 A. I don't think so, but I 10 don't know. 11 Q. Okay. Do you know how many 12 hours you spent in the -- in the month of 13 March on the -- on this -- on the talc 14 litigation? 15 A. The first two weeks of March 16 I actually was on vacation. So that 17 immediately truncates the month. 18 I spent two -- I mean, there 19 were these two days in which Mr. Locke 20 was in New Haven. And I probably put in 21 a day prior to that. And I put in some 22 time in preparation for today. I don't 23 know how much that is. 24 Q. Okay. So you had -- there</p>	<p>1 through 13. 2 MR. LOCKE: Okay. You are 3 not including the reference 4 list and -- 5 MR. GOLOMB: I'm not 6 including the reference list. 7 That's a separate exhibit. 8 THE WITNESS: Yes, that 9 looks like my handwriting. 10 BY MR. GOLOMB: 11 Q. All right. And did you 12 prepare the report yourself? 13 A. Yes, mostly. I also made 14 the mistake myself. 15 Q. When you say yes mostly, 16 what do you mean? 17 A. I probably had somebody in 18 my office review it for typos and -- and 19 other things like that. But I did the 20 writing. 21 Q. And did -- did you write 22 every word of it? 23 A. To the best of my knowledge. 24 Q. Were there drafts?</p>

44 (Pages 170 to 173)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 174</p> <p>1 A. It's an ongoing process. I 2 don't write it in one sitting so that 3 from day-to-day it continues. 4 Q. Okay. So from day-to-day, 5 it may continue from -- and I'm being 6 very simplistic about this, but it may 7 continue from Page 1 to Page 2 to Page 3 8 until you ultimately get to your 9 conclusions on Page 13, correct? 10 A. Yes, that's right. 11 Q. And how long does that 12 process take? 13 A. Weeks. I don't know the 14 answer. It depends upon -- you're saying 15 for this report or for a report when I 16 write one? 17 Q. In this report. 18 A. This report began with a 19 previous report and was then extended out 20 in time, and much of the process of 21 preparing this report was not physically 22 preparing the report, but keeping up with 23 the literature on a monthly basis to see 24 whether anything had changed and what had</p>	<p style="text-align: right;">Page 176</p> <p>1 a list. One will be a printout that 2 says, "Ovarian cancer, January, 2019." 3 It may be 600 articles. 4 Q. Okay. But that's -- my 5 point is, that's something that started 6 after you were retained as a consultant 7 in this case. That's not something -- 8 A. Oh, yes. I was not -- 9 Q. Let me just finish the 10 question -- 11 A. Sorry. You're right. 12 Q. -- for the court reporter. 13 That's not something that you did before 14 you were acting as a paid consultant in 15 this case, correct? 16 MR. LOCKE: Objection. 17 MR. HEGARTY: Objection. 18 THE WITNESS: I did not do 19 that prior to becoming involved in 20 this case, not this case, in the 21 subject. 22 BY MR. GOLOMB: 23 Q. In the -- in the talc 24 litigation.</p>
<p style="text-align: right;">Page 175</p> <p>1 accumulated. 2 Q. Okay. 3 A. So if you're asking me how 4 long did it take to write this 5 physically, that's in some number of 6 hours. But it was a lot of time spent in 7 determining what I was going to write. 8 And part of it, just so you understand my 9 process, is that I have a librarian who 10 pulls the literature monthly on talc, 11 talc and cancer, ovarian cancer, and I 12 get summaries of the literature from the 13 National Library of Medicine. You've 14 used this also, I'm sure. And I go 15 through them and I determine anything 16 that seems as though it might be relevant 17 to answering the question that I was 18 originally asked. 19 Q. Now, you said that your 20 librarian pulls the talc-related 21 literature. 22 A. She does not choose the 23 literature to pull. She does the 24 physical process of it. She provides me</p>	<p style="text-align: right;">Page 177</p> <p>1 A. In the subject of talc. To 2 the best of my recollection, sir, I was 3 not specifically retained in a 4 litigation. I was initially involved in 5 the issue of talc. 6 Q. Okay. And so -- but my 7 point is, is that your instruction to 8 your librarian to start this list and 9 pulling this literature did not happen 10 before April of -- May of 2015 when you 11 were first contacted to work as a 12 consultant in this case. 13 A. Yes, I think that's correct. 14 Q. All right. 15 A. But the answer to your 16 question was how long it takes to write 17 this. And I was explaining that on a 18 monthly basis, I go through this 19 literature, which is germane to this 20 report. And on a monthly basis, I note 21 that which would be added to update the 22 report. And so this has been a living 23 document. And I can't give you a simple 24 answer as to whether it was 14 hours or</p>

Page 178	Page 180
<p>1 22 hours. It was hours, including a lot 2 of time reading. 3 Q. Let me just ask you a 4 question. Going back to your CV, your CV 5 says, "2007 to 2017, clinical professor 6 of epidemiology and public health," 7 correct? 8 A. Yes. 9 Q. And then it says from 2008 10 to current, clinical professor of 11 medicine, Yale University, correct? 12 A. Yes. 13 Q. It also says 2003 to 14 current, adjunct associate professor of 15 medicine, correct? 16 A. At Johns Hopkins. 17 Q. At Johns Hopkins. 18 A. Yes. 19 Q. Right. And you told me 20 earlier in answer to a question that 21 you're no longer a clinical professor of 22 epidemiology at Yale, and you explained 23 that there was -- 24 A. Yes.</p>	<p>1 I'm asking him about his CV, to 2 confirm what his position is. 3 MR. LOCKE: Okay. What is 4 the question? 5 BY MR. GOLOMB: 6 Q. So -- well, the question -- 7 the question now is, for whatever reason, 8 this dispute with this chairman, you're 9 no longer a clinical professor of 10 epidemiology at Yale? 11 MR. LOCKE: Objection. 12 You can answer. 13 THE WITNESS: Yes. I told 14 you a moment ago that I was 15 responsible for the paper, and I 16 was responsible for the mistake. 17 You didn't follow that. 18 The mistake was that I 19 carried over from an earlier 20 report that I was currently 21 clinical professor of epidemiology 22 and public health. 23 BY MR. GOLOMB: 24 Q. So the mistake was that in</p>
Page 179	Page 181
<p>1 Q. -- some conflict with the 2 chairman or something? 3 A. Yes. 4 MR. LOCKE: First, let me 5 interpose an objection because you 6 missed a portion, but go ahead. 7 MR. GOLOMB: Well, for 8 completeness's sake, what portion 9 did I miss. 10 MR. LOCKE: Faculty member 11 of the Yale occupational 12 environmental medicine program. 13 MR. GOLOMB: And you're 14 looking where? 15 MR. LOCKE: In the first 16 paragraph that you're referring to 17 in his report. 18 MR. GOLOMB: I'm not looking 19 at his report. I'm looking at his 20 CV. 21 MR. LOCKE: Okay. I thought 22 you were comparing his report and 23 his CV. 24 MR. GOLOMB: No. Right now</p>	<p>1 the very first sentence of the report, in 2 a consultingship that you have been paid 3 almost \$600,000 for, you identified 4 yourself as a clinical professor of 5 epidemiology, when in fact you're not. 6 That's the mistake? 7 MR. LOCKE: Objection. 8 Objection. 9 THE WITNESS: I provided my 10 CV correctly. I did not even see 11 that when I read it 12 times. And 12 it is my mistake. 13 BY MR. GOLOMB: 14 Q. But you typed it? 15 A. That was not typed. That 16 was carried over from an earlier report. 17 That was my laziness of mind. And I'm 18 responsible for that. 19 Q. So let me understand what 20 you mean by carried over. Do you mean 21 cut and paste? 22 A. I had written an earlier 23 report, you're aware -- 24 Q. Right.</p>

Jonathan Borak, M.D., DABT

Page 182	Page 184
<p>1 A. -- which resembles much of 2 what is in this structure. 3 Q. What do you -- define 4 "resemble." 5 A. If you follow through many 6 of the paragraphs, it is laid out 7 similarly. And the previous report was 8 something that I, on a monthly basis, 9 would update. And so I had monthly, or 10 bimonthly or whatever, revisions of a 11 report that I had once written. 12 Q. Right. 13 A. And in the context of doing 14 it that way, I never looked back at that 15 first paragraph. And it's my mistake. 16 Q. All right. And by 17 "resemble," would you agree that a -- two 18 reports that are over 85 percent 19 word-for-word verbatim the same, resemble 20 each other? 21 MR. LOCKE: Objection. 22 MR. HEGARTY: Objection. 23 THE WITNESS: Yes, I would 24 say that.</p>	<p>1 pasted. This was a revision of an 2 earlier report. 3 BY MR. GOLOMB: 4 Q. Okay. When you say this 5 is -- so the record is clear, when you 6 say, "This is a revision of an earlier 7 report," this is the report of 8 February 25, 2019? 9 A. Correct. 10 Q. The earlier report is the 11 report in Oules? 12 MR. LOCKE: Objection. 13 MR. HEGARTY: Objection. 14 BY MR. GOLOMB: 15 Q. Well, that we -- that we've 16 generally described as the Oules report 17 that -- when you were involved back in -- 18 beginning in 2015. 19 MR. LOCKE: Objection. 20 Again, it's actually from the New 21 Jersey, Atlantic County 22 litigation. There was the first 23 report, and then there was a 24 second report for Oules.</p>
Page 183	Page 185
<p>1 BY MR. GOLOMB: 2 Q. All right. And so I'm still 3 trying to understand what you mean by -- 4 when you say in the very first paragraph, 5 where you identify yourself as a clinical 6 professor of epidemiology, when in fact 7 you're not a clinical professor of 8 epidemiology, what you are talking about 9 in this transition from the first report 10 to the second report. And so let me ask 11 you a very specific question. 12 This report dated 13 February 25, 2019, which has been -- 14 which has been marked as Exhibit 7, did 15 you type this report yourself? 16 MR. HEGARTY: Objection. 17 THE WITNESS: This comes off 18 my computer, yes. 19 BY MR. GOLOMB: 20 Q. Okay. Do you know what I 21 mean when I say cut and paste? 22 MR. LOCKE: Objection. 23 THE WITNESS: I understand 24 the phrase. This was not cut and</p>	<p>1 Or I think she pronounced 2 her name Oules, but I'm not sure. 3 BY MR. GOLOMB: 4 Q. You were -- you were deposed 5 in the Oules case, correct? 6 A. Yes, I think that's correct. 7 Q. All right. And you authored 8 a report in the Oules case? 9 A. Yes, I think that's correct. 10 Q. And the Oules report is 11 dated January 17, 2017. Is that 12 consistent with your recollection? 13 A. I don't doubt it. 14 Q. Okay. And in the -- in the 15 first paragraph of the Oules report, 16 you -- you wrote verbatim, "I am" -- "I 17 am a clinical professor of epidemiology 18 and public health, et cetera, et cetera." 19 And it is word for word what 20 you wrote in the February 25, 2019, 21 report in the MDL. 22 A. What I just told you earlier 23 was that I took an earlier report, it may 24 have been the Oules report, and I was</p>

47 (Pages 182 to 185)

Jonathan Borak, M.D., DABT

Page 186	Page 188
<p>1 updating it as I read over several years. 2 I never went back and redid that first 3 paragraph, because I never even looked at 4 it. That's my mistake. 5 Q. And I'm not -- I'm -- I'm 6 sorry. I didn't mean to interrupt. 7 And I'm trying to figure 8 out, and this -- this is what, my words, 9 you seem to be dancing around. 10 And that is, how you updated 11 the report. You either typed it -- or 12 you said it's on your computer. But you 13 either typed it on your computer or you 14 lifted that paragraph from the earlier 15 report, Paragraph Number 1, identifying 16 yourself as a clinical -- professor of 17 epidemiology, and lifted it and put it in 18 Paragraph 1 of this report dated 19 February 2019. 20 A. I did neither -- 21 MR. LOCKE: Objection. 22 MR. HEGARTY: Objection. 23 THE WITNESS: I did neither. 24 BY MR. GOLOMB:</p>	<p>1 surprised by you. 2 BY MR. GOLOMB: 3 Q. Okay. Take my word for it. 4 A. Thank you. 5 MR. HEGARTY: Objection. 6 MR. LOCKE: Good luck. 7 BY MR. GOLOMB: 8 Q. And -- and you understand 9 that part of -- part of the challenge is 10 your qualifications, correct? 11 MR. HEGARTY: Objection. 12 MR. LOCKE: Objection. 13 THE WITNESS: I didn't know 14 that that was part of the Daubert 15 challenge. 16 BY MR. GOLOMB: 17 Q. I'm just asking you a simple 18 yes or no question. 19 MR. LOCKE: He didn't know. 20 He answered it. 21 BY MR. GOLOMB: 22 Q. You -- you understand that 23 that -- that's part of the -- that 24 qualifications is part of the judge's</p>
Page 187	Page 189
<p>1 Q. So, what did you do? 2 A. I -- I typed this in 3 whenever it was, you are giving me a date 4 from 2015. And that is the paragraph 5 from 2015. 6 And I have just continued 7 revising that report in a Word file. And 8 what I'm telling you is mistakenly, I 9 never went back and changed that first 10 line. I feel like an idiot. You don't 11 have to beat me into feeling worse than I 12 feel about myself. 13 What I did was a stupid and 14 as trivial as anything that I can 15 imagine. I gave you my full and correct 16 CV. And I give you my apology for 17 misleading you by the stupidity of mine. 18 Q. Okay. Well, you understand 19 that you're going to be subject to a 20 Daubert challenge in this case, right? 21 MR. LOCKE: Objection. 22 MR. HEGARTY: Objection. 23 THE WITNESS: I don't know 24 that that's correct, but I'm not</p>	<p>1 consideration as to whether or not she 2 should allow you to testify as an 3 epidemiologist in front of a jury? 4 MR. HEGARTY: Objection. 5 MR. LOCKE: Objection. 6 THE WITNESS: I -- I don't 7 know that's part of the four legs 8 of the Daubert decision. But 9 maybe it is. 10 BY MR. GOLOMB: 11 Q. The four legs of a Daubert 12 decision? What's your understanding as 13 to what the four legs? 14 A. Have to do with methodology 15 and -- and -- 16 MR. HEGARTY: Objection. 17 MR. LOCKE: Objection. If 18 you want his legal opinion -- 19 MR. GOLOMB: No. I want 20 to -- he's -- he used the phrase, 21 not me. The four legs -- 22 THE WITNESS: It's your -- 23 MR. GOLOMB: Excuse me. 24 He used the phrase four legs</p>

48 (Pages 186 to 189)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 190</p> <p>1 of a Daubert decision. 2 BY MR. GOLOMB: 3 Q. And I just want to know what 4 your understanding is of the four legs of 5 a Daubert decision. 6 A. I -- I have read that there 7 are criteria that are used in determining 8 whether an expert's testimony will be 9 permitted. 10 Q. Okay. 11 A. And that is based upon the 12 methodology. 13 Q. And is that your -- only 14 methodology? 15 A. I'm sorry? 16 Q. Is it only methodology? 17 MR. LOCKE: Objection. 18 MR. HEGARTY: Objection. 19 THE WITNESS: That is my 20 understanding, but I'm just a 21 country doctor. 22 BY MR. GOLOMB: 23 Q. Okay. So let -- let's talk 24 about your methodology in this case.</p>	<p style="text-align: right;">Page 192</p> <p>1 relevant to the MDL? 2 Q. So -- well, I'm -- I'm using 3 it as a -- well -- well, okay. That's a 4 fair question. And we'll -- what we'll 5 do is we're going to -- we'll try to get 6 a date. Okay? 7 A. Try to get a what? 8 Q. We'll try to fix a date. 9 A. A date? 10 Q. Yeah. 11 A. Okay. 12 Q. All right. So you authored 13 your report in the Oules case on 14 January 17, 2017? 15 A. I accept that as your 16 statement. 17 Q. You were deposed in the 18 Oules case on June 8, 2017? 19 A. Again, I accept that as 20 correct. I don't know. 21 Q. You authored your report. 22 February 25, 2019? 23 A. Okay. 24 Q. When did you first learn</p>
<p style="text-align: right;">Page 191</p> <p>1 So -- and for ease of reference, so we 2 don't have to have this back and forth. 3 Well, when -- when I talk about the -- 4 the earlier report and your work before 5 the MDL, I'll refer to it as Oules, okay? 6 Can we agree on that? 7 A. So Oules represents anything 8 that I did on talc prior to the MDL. 9 Q. Correct. 10 A. I'll accept that as a 11 nickname. 12 MR. LOCKE: Well, I'm -- I'm 13 going to object, but -- 14 BY MR. GOLOMB: 15 Q. And that's a good way to put 16 it. We'll call it -- we'll use it as a 17 nickname. And anything post -- anything 18 that you've done for the MDL, we'll call 19 the MDL. 20 You with me? 21 A. I am. 22 Let me ask you a question 23 for clarity. What if I did something 24 during the time of the MDL that wasn't</p>	<p style="text-align: right;">Page 193</p> <p>1 that you were going to be serving as an 2 expert in the MDL? 3 A. I don't remember. 4 Q. Was it before or after you 5 testified in June of 2017 in the Oules 6 case? 7 A. I imagine it was after, but 8 I don't -- I don't remember specifically. 9 Q. Okay. So we'll go back to 10 your -- your -- I want to talk about your 11 methodology. All right? 12 And so your -- the first 13 thing that you did when you first got 14 involved in the talc litigation was to -- 15 to pull -- to pull the literature? 16 A. Was that your question? 17 MR. HEGARTY: Objection. 18 BY MR. GOLOMB: 19 Q. Yeah. 20 A. Yes. The first thing I did 21 after my conversations was to read about 22 talc, about talc and ovarian cancer. 23 Q. And as a -- as a -- as an 24 expert and as a professor, you want to</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 194</p> <p>1 know before you review that literature, 2 you want to know what your role is going 3 to be, correct? 4 MR. LOCKE: Objection. 5 THE WITNESS: I don't 6 understand your question. 7 BY MR. GOLOMB: 8 Q. You wanted to know why you 9 were serving as an expert? 10 MR. LOCKE: Objection. 11 MR. HEGARTY: Objection. 12 THE WITNESS: I think it was 13 clear to me that there was a 14 factual question regarding whether 15 or not talc caused ovarian cancer. 16 BY MR. GOLOMB: 17 Q. But that's not the question 18 that you ultimately answered. 19 A. That I understood, however, 20 from the very beginning that there was 21 that question. And then as I explained 22 in my report -- and I -- just to make it 23 as clear as possible, I was asked -- 24 Q. Tell me what page you are</p>	<p style="text-align: right;">Page 196</p> <p>1 correct? 2 MR. LOCKE: Objection. 3 THE WITNESS: I said that I 4 was asked to review the published 5 and peer-reviewed scientific 6 literature. 7 BY MR. GOLOMB: 8 Q. Right. And so -- and I just 9 want to be clear, and I think you've 10 answered this question at least once 11 already. 12 To be clear, you were asked 13 to -- not to determine whether or not 14 talc causes ovarian cancer or whether it 15 may cause ovarian cancer. You were asked 16 simply to comment on what the state of 17 the literature was as of the date that 18 you wrote the report? 19 MR. HEGARTY: Objection. 20 MR. LOCKE: Objection. 21 BY MR. GOLOMB: 22 Q. Is that correct? 23 A. I was asked to evaluate, 24 whether, when, and by whom it had been</p>
<p style="text-align: right;">Page 195</p> <p>1 referring to. 2 A. I'm on -- looking on Page 2. 3 I was asked by Mr. Locke, this 4 good-looking guy next to me, to review 5 the published and peer-reviewed 6 scientific literature -- 7 Q. What paragraph are you 8 reading? 9 A. Eight. I'll do it again. 10 "I was asked by Tom Locke to 11 review published and peer-reviewed 12 scientific literature relative to the 13 alleged association between perineal use 14 of talc-containing powders and ovarian 15 cancer. I was specifically asked to 16 analyze the above materials from a 17 chronological perspective in order to 18 evaluate whether, when, and by whom it 19 had been determined that perineal use of 20 talc-containing powder causes ovarian 21 cancer." 22 Q. Okay. And when you say by 23 whom it has been determined, you're 24 talking about in the existing literature,</p>	<p style="text-align: right;">Page 197</p> <p>1 determined. 2 Q. Okay. Which is just another 3 way of saying what I just said, correct? 4 MR. LOCKE: Objection. 5 THE WITNESS: I think it's a 6 little different. 7 BY MR. GOLOMB: 8 Q. Okay. And that's why you 9 didn't do your own meta-analysis, and 10 that's why you didn't do a Bradford Hill 11 analysis, because that wasn't relevant to 12 the question that was being asked of you? 13 MR. LOCKE: Objection. 14 MR. HEGARTY: Objection. 15 THE WITNESS: It was not 16 necessary. 17 BY MR. GOLOMB: 18 Q. Right, because that's not 19 what was being asked of you? 20 A. I was asked to do something 21 different, yes. 22 Q. Right. So going back to the 23 earlier report, after you understood what 24 your job was --</p>

Jonathan Borak, M.D., DABT

Page 198	Page 200
<p>1 A. The earlier report?</p> <p>2 Q. Yeah, the January 2017</p> <p>3 report.</p> <p>4 A. Okay.</p> <p>5 Q. You now -- the first thing</p> <p>6 you do is to review the literature?</p> <p>7 MR. LOCKE: Objection.</p> <p>8 THE WITNESS: I'm sorry.</p> <p>9 When is that?</p> <p>10 BY MR. GOLOMB:</p> <p>11 Q. Before you wrote your report</p> <p>12 in January of 2017.</p> <p>13 A. I read literature at the</p> <p>14 very beginning of this project.</p> <p>15 Q. Right. And you -- the</p> <p>16 literature as it relates to this issue of</p> <p>17 the causal link or the association</p> <p>18 between talc and ovarian cancer goes back</p> <p>19 to 1972, correct?</p> <p>20 MR. HEGARTY: Objection.</p> <p>21 MR. LOCKE: Objection.</p> <p>22 THE WITNESS: It may have</p> <p>23 even gotten back in conversation</p> <p>24 before that, but somewhere like</p>	<p>1 Council. Thank you.</p> <p>2 BY MR. GOLOMB:</p> <p>3 Q. You didn't -- you never</p> <p>4 reviewed any of those internal documents,</p> <p>5 correct?</p> <p>6 MR. LOCKE: Objection.</p> <p>7 MR. HEGARTY: Objection.</p> <p>8 THE WITNESS: I think that's</p> <p>9 correct.</p> <p>10 BY MR. GOLOMB:</p> <p>11 Q. All right. So when you talk</p> <p>12 about pre-1972 literature, you're not</p> <p>13 talking about internal documents that</p> <p>14 maybe in 1965 identified a potential</p> <p>15 problem for them?</p> <p>16 MR. LOCKE: Objection.</p> <p>17 MR. HEGARTY: Objection.</p> <p>18 THE WITNESS: I was not</p> <p>19 doing that.</p> <p>20 BY MR. GOLOMB:</p> <p>21 Q. Okay. And so when you said</p> <p>22 there was conversation, there may have</p> <p>23 been conversation before 1972 about it,</p> <p>24 what are you referring to?</p>
Page 199	Page 201
<p>1 that.</p> <p>2 BY MR. GOLOMB:</p> <p>3 Q. And when you say in</p> <p>4 conversation, what conversation are you</p> <p>5 referring to?</p> <p>6 A. I don't know. But I'm just</p> <p>7 saying that I don't think it was born</p> <p>8 anew in 1972.</p> <p>9 Q. Okay. Now, you raised the</p> <p>10 issue. Let me ask you a question about</p> <p>11 pre-1972.</p> <p>12 If I understand correctly</p> <p>13 from the various attachments to your</p> <p>14 report, you have never looked at any</p> <p>15 company documents. By company documents,</p> <p>16 I mean company documents from Johnson &</p> <p>17 Johnson, company documents from Imerys or</p> <p>18 any of their predecessors, company</p> <p>19 documents from the Personal Care -- PCPC.</p> <p>20 I don't remember what it stands for</p> <p>21 anymore.</p> <p>22 MR. HEGARTY: Products</p> <p>23 Council.</p> <p>24 MR. GOLOMB: Products</p>	<p>1 A. I'm just speculating, and I</p> <p>2 shouldn't speculate.</p> <p>3 Q. Okay. So take me through</p> <p>4 what it is that you do before you're</p> <p>5 ready to -- ready to write your report.</p> <p>6 A. Could you be more specific?</p> <p>7 Do what I do? What do you mean?</p> <p>8 Q. You get an assignment.</p> <p>9 You've had whatever introductory</p> <p>10 conversations you've had with Mr. Locke.</p> <p>11 You know what your job is. You've got a</p> <p>12 fee agreement with TASA. And that is</p> <p>13 somewhere in mid-2015, correct?</p> <p>14 MR. HEGARTY: Objection.</p> <p>15 MR. LOCKE: Objection.</p> <p>16 THE WITNESS: Maybe.</p> <p>17 BY MR. GOLOMB:</p> <p>18 Q. And then in January of 2017</p> <p>19 you write -- you sign off on a report?</p> <p>20 A. Yes.</p> <p>21 MR. LOCKE: Objection.</p> <p>22 BY MR. GOLOMB:</p> <p>23 Q. And my question is, what do</p> <p>24 you do in between?</p>

51 (Pages 198 to 201)

Jonathan Borak, M.D., DABT

Page 202	Page 204
<p>1 A. Read a lot.</p> <p>2 Q. So what do you read?</p> <p>3 A. What did I do?</p> <p>4 I probably began with the</p> <p>5 2010 IARC report and the land -- I'm long</p> <p>6 enough this morning that my memory is</p> <p>7 starting to become a little bit --</p> <p>8 Langseth, which was a meta-analysis by</p> <p>9 members of that IARC committee. And I</p> <p>10 would have pulled most of the literature</p> <p>11 that seemed specific to ovarian cancer,</p> <p>12 and I would have read them.</p> <p>13 Then what I discovered was I</p> <p>14 was looking at a large number of</p> <p>15 case-control studies. By then there were</p> <p>16 more than 20, maybe 25. And so I</p> <p>17 actually engaged somebody working for me</p> <p>18 to build a table of them so that I could</p> <p>19 keep them straight because otherwise it</p> <p>20 became a memory game.</p> <p>21 And the issue of concern to</p> <p>22 me was which of the variety of</p> <p>23 confounders and other factors were</p> <p>24 considered and how had they been</p>	<p>1 your report of -- in your ten-page report</p> <p>2 of January 17, 2017, you concluded,</p> <p>3 "Accordingly, it is my opinion to a</p> <p>4 reasonable degree of scientific certainty</p> <p>5 that whether genital talc causes ovarian</p> <p>6 cancer remains uncertain and unproven,"</p> <p>7 correct?</p> <p>8 MR. LOCKE: Objection. Go</p> <p>9 ahead.</p> <p>10 THE WITNESS: I -- I may</p> <p>11 have written that. I --</p> <p>12 BY MR. GOLOMB:</p> <p>13 Q. Okay. Well --</p> <p>14 A. You can show it to me if</p> <p>15 you'd like.</p> <p>16 Q. Yeah, why don't we take a</p> <p>17 look at Exhibit 19.</p> <p>18 MR. GOLOMB: We've been</p> <p>19 going about an hour and a half</p> <p>20 now.</p> <p>21 MR. LOCKE: Well, we're</p> <p>22 going to have lunch out there in</p> <p>23 20 minutes or less. So do you</p> <p>24 want to continue till then and</p>
Page 203	Page 205
<p>1 considered and how did those various</p> <p>2 20-plus studies, how were they similar or</p> <p>3 different. I needed to know that before</p> <p>4 I could probably read the determinations</p> <p>5 made by IARC and Langseth and others.</p> <p>6 And then I did the same</p> <p>7 thing with literature that was on the</p> <p>8 cohort studies, which of course was</p> <p>9 easier because initially there were only</p> <p>10 one or maybe two.</p> <p>11 And then along the way, I</p> <p>12 became intrigued to understand more about</p> <p>13 the chemistry of talc and its biological</p> <p>14 activities, and I read about that.</p> <p>15 And as I did those various</p> <p>16 things, I looked for statements which</p> <p>17 said whether talc caused ovarian cancer</p> <p>18 and when and by whom it was said, if it</p> <p>19 had been said.</p> <p>20 And that was the large piece</p> <p>21 of what I was doing, but some of it</p> <p>22 required some understanding of what these</p> <p>23 various people were writing about.</p> <p>24 Q. And then in -- and then in</p>	<p>1 then we'll take a lunch break?</p> <p>2 MR. GOLOMB: Yeah, that's</p> <p>3 fine.</p> <p>4 THE WITNESS: Thank you.</p> <p>5 (Document marked for</p> <p>6 identification as Exhibit</p> <p>7 Borak-19.)</p> <p>8 BY MR. GOLOMB:</p> <p>9 Q. Do you recognize this</p> <p>10 report?</p> <p>11 A. Yes.</p> <p>12 MR. LOCKE: I just want to</p> <p>13 be clear. Unlike Exhibit 7, this</p> <p>14 report includes a number of</p> <p>15 attachments that Dr. Borak also</p> <p>16 had with -- and when I say this</p> <p>17 report, this Exhibit 19 includes a</p> <p>18 number of attachments that</p> <p>19 Dr. Borak also prepared for his</p> <p>20 report, which is Exhibit 7 but are</p> <p>21 not included with Exhibit 7.</p> <p>22 MR. GOLOMB: Right. And</p> <p>23 as -- the attachments to</p> <p>24 Exhibit 7, which is the MDL</p>

Jonathan Borak, M.D., DABT

Page 206	Page 208
<p>1 report, I have separated, so that</p> <p>2 there are a number of follow-up</p> <p>3 exhibits we just haven't gotten</p> <p>4 to.</p> <p>5 MR. LOCKE: Okay.</p> <p>6 BY MR. GOLOMB:</p> <p>7 Q. So the January 17th report</p> <p>8 on Page 10. That's your signature?</p> <p>9 A. It's marked 17. You said</p> <p>10 January just now.</p> <p>11 Q. Well, let's go to Page 10.</p> <p>12 I have a question about that.</p> <p>13 A. Oh, interesting.</p> <p>14 Q. Right.</p> <p>15 A. Same sloppiness. Okay.</p> <p>16 MR. LOCKE: It's actually a</p> <p>17 supplemental report, but...</p> <p>18 BY MR. GOLOMB:</p> <p>19 Q. Well, let -- let's take one</p> <p>20 thing at a time. Page 10, that's your</p> <p>21 signature?</p> <p>22 A. Yes, sir.</p> <p>23 Q. All right. And on Page 1 at</p> <p>24 the top of the page it says, "Report of</p>	<p>1 A. I think that there either</p> <p>2 was an additional paper that came out or</p> <p>3 I was -- I -- I don't remember.</p> <p>4 Q. Okay. Well --</p> <p>5 A. You are correct about the</p> <p>6 date.</p> <p>7 Q. Let me ask you this. Let</p> <p>8 me -- let me throw out another option for</p> <p>9 you. And that is that your report was</p> <p>10 really January 17, 2017. You sent it to</p> <p>11 somebody for review. That other person</p> <p>12 edited it, got it back to you, you</p> <p>13 accepted the edits. You dated the report</p> <p>14 March 10, 2017, and forgot to change</p> <p>15 Page 1.</p> <p>16 MR. HEGARTY: Objection.</p> <p>17 MR. LOCKE: Objection.</p> <p>18 BY MR. GOLOMB:</p> <p>19 Q. Did that happen?</p> <p>20 MR. LOCKE: No.</p> <p>21 THE WITNESS: Almost</p> <p>22 certainly not.</p> <p>23 BY MR. GOLOMB:</p> <p>24 Q. Well, is there anything in</p>
Page 207	Page 209
<p>1 Jonathan Borak, M.D., D.A.B.T.,</p> <p>2 January 17, 2017," correct?</p> <p>3 A. Yes. And it was clearly</p> <p>4 revised 3/10/17.</p> <p>5 Q. And --</p> <p>6 A. And that is noted at the --</p> <p>7 at the bottom, as well as on the</p> <p>8 signature. At the footer of the first</p> <p>9 page it has the corrected date.</p> <p>10 Q. Well, on Page 10, next to</p> <p>11 your signature, it says March 10, 2017.</p> <p>12 A. Yes. And that's what it</p> <p>13 says in the footer on Page 1.</p> <p>14 Q. It says what?</p> <p>15 A. "Borak report, 3/10/17."</p> <p>16 Q. Right. So why is the -- why</p> <p>17 does the top of the page still say</p> <p>18 January 17th?</p> <p>19 A. It was a supplement to that</p> <p>20 earlier report, but it probably should</p> <p>21 have been changed. I'm telling you it's</p> <p>22 probably because I'm sloppy.</p> <p>23 Q. Well, when you say -- when</p> <p>24 you say supplement, what do you mean?</p>	<p>1 this report that indicates that there was</p> <p>2 a supplement?</p> <p>3 A. I would have to look at it</p> <p>4 again. I don't know.</p> <p>5 MR. LOCKE: Or the cover</p> <p>6 that might have been sent with it.</p> <p>7 THE WITNESS: I don't know.</p> <p>8 BY MR. GOLOMB:</p> <p>9 Q. Well, once you author the</p> <p>10 report, where does it go?</p> <p>11 A. The real question is after I</p> <p>12 authored --</p> <p>13 Q. No, that's my question. My</p> <p>14 question is the real question.</p> <p>15 A. Okay. Then you give me the</p> <p>16 real question.</p> <p>17 Q. The real question is, once</p> <p>18 you wrote your report dated January 17th,</p> <p>19 2000 -- that says January 17th at the top</p> <p>20 of the page, where did it go?</p> <p>21 MR. LOCKE: Objection.</p> <p>22 THE WITNESS: It would have</p> <p>23 been a file on my computer.</p> <p>24 BY MR. GOLOMB:</p>

Jonathan Borak, M.D., DABT

Page 210	Page 212
<p>1 Q. Well -- but it had to -- it</p> <p>2 had to go to somebody outside of your</p> <p>3 office.</p> <p>4 MR. LOCKE: Objection.</p> <p>5 BY MR. GOLOMB:</p> <p>6 Q. Whether by e-mail, by</p> <p>7 hardcopy or some other form of digital</p> <p>8 communication.</p> <p>9 A. I think you're asking</p> <p>10 whether I mailed it or in some fashion to</p> <p>11 somebody in January. And I don't</p> <p>12 remember.</p> <p>13 Q. And would you -- would that</p> <p>14 be on your computer?</p> <p>15 A. Almost certainly not.</p> <p>16 Q. You would have deleted the</p> <p>17 information from your files?</p> <p>18 A. I -- I delete -- I delete</p> <p>19 drafts. I don't keep drafts as a matter</p> <p>20 of principle.</p> <p>21 Q. Why do -- why do you delete</p> <p>22 drafts?</p> <p>23 A. Because they accumulate.</p> <p>24 When I write, I update whatever I'm</p>	<p>1 Q. Okay. So if -- if there</p> <p>2 were drafts, draft reports, and</p> <p>3 transmittal letter of some form where you</p> <p>4 sent the report to a third party, they --</p> <p>5 that -- maybe not the draft, but the</p> <p>6 transmittal letter would still be in your</p> <p>7 system?</p> <p>8 A. Possibly.</p> <p>9 Q. And when you -- in -- in</p> <p>10 this case when you complete whether --</p> <p>11 and whether it's in the -- the earlier</p> <p>12 draft or 2017, or your report in -- the</p> <p>13 MDL report in 2019, when you complete</p> <p>14 your -- your report, does it go to TASA,</p> <p>15 or does it go to Mr. Locke?</p> <p>16 MR. LOCKE: Objection.</p> <p>17 THE WITNESS: When the</p> <p>18 report is completed?</p> <p>19 BY MR. GOLOMB:</p> <p>20 Q. Yeah.</p> <p>21 A. I would send it to</p> <p>22 Mr. Locke.</p> <p>23 Q. Okay. And does -- does he</p> <p>24 send something back to you?</p>
Page 211	Page 213
<p>1 writing on, day by day, so I can find</p> <p>2 what I've done. And when I'm done, I may</p> <p>3 have 20 or 30 pieces. And I dispose of</p> <p>4 them, because otherwise they clutter</p> <p>5 everything.</p> <p>6 Q. And do you have the</p> <p>7 transmittal letters or transmittal</p> <p>8 e-mails when you -- when you send your</p> <p>9 reports to a third person?</p> <p>10 A. Generally, but I can't be</p> <p>11 sure.</p> <p>12 Q. Would you delete those as</p> <p>13 well?</p> <p>14 A. Not intentionally --</p> <p>15 MR. LOCKE: Objection.</p> <p>16 BY MR. GOLOMB:</p> <p>17 Q. Excuse me?</p> <p>18 A. Not intentionally.</p> <p>19 MR. LOCKE: Objection.</p> <p>20 MR. GOLOMB: I heard you. I</p> <p>21 didn't hear him.</p> <p>22 THE WITNESS: Not</p> <p>23 intentionally.</p> <p>24 BY MR. GOLOMB:</p>	<p>1 MR. LOCKE: Objection.</p> <p>2 MR. HEGARTY: Objection.</p> <p>3 MR. LOCKE: You're not</p> <p>4 entitled to get into our</p> <p>5 communications.</p> <p>6 MR. GOLOMB: Are you</p> <p>7 instructing him not to answer?</p> <p>8 MR. LOCKE: Correct.</p> <p>9 BY MR. GOLOMB:</p> <p>10 Q. And so is that a possible</p> <p>11 explanation as to why your report dated</p> <p>12 January 17, 2017, wasn't signed off until</p> <p>13 March of 2017?</p> <p>14 MR. LOCKE: Objection.</p> <p>15 BY MR. GOLOMB:</p> <p>16 Q. Because somebody else was</p> <p>17 looking at it and editing it?</p> <p>18 MR. LOCKE: Objection.</p> <p>19 THE WITNESS: It was</p> <p>20 certainly not that. But I don't</p> <p>21 know why that happened.</p> <p>22 BY MR. GOLOMB:</p> <p>23 Q. All right. So your 2017</p> <p>24 report is, whether it's January 17th or</p>

Jonathan Borak, M.D., DABT

Page 214	Page 216
<p>1 March 10th, is followed by a deposition 2 that takes place on June 8, 2017. 3 A. I accept that as the dates. 4 Q. Did you review that earlier 5 deposition in the Oules case to assist 6 you in your preparation here today? 7 A. Yes, I did. 8 Q. Do you recall -- and I 9 imagine you would, since it was Mr. Green 10 taking the deposition. Do you recall how 11 long that deposition took? 12 A. No. 13 Q. Is it fair to say that it 14 took hours? 15 A. I don't know. 16 Q. Okay. If we look at the 17 deposition transcript -- so, the 18 deposition transcript indicates the date 19 of Thursday, June 8, 2017. It began at 20 8:57 in the morning at the New Haven 21 Hotel. Do you recall that? Is that 22 consistent with your recollection? 23 MR. LOCKE: Objection. 24 You're saying "if we look at." We</p>	<p>1 A. I don't have a specific 2 recollection. But I accept what you've 3 said as probably true. 4 Q. Okay. I'll just show you 5 that page. 6 A. That's what it says. 7 Q. Okay. When did you last 8 read this deposition? 9 A. Last week. 10 Q. Last week. 11 Let me just ask you. Let me 12 just -- I'm going to refer to Page 97 of 13 the -- I'll read it and then I'll show it 14 to you. And this is from the Oules 15 deposition on June 8th of 2017, on Page 16 97. 17 The question was, "With 18 regard to 'accepted methods for proving 19 causality,' you have not done that -- 20 examined that in your report. 21 And your answer was, "Yes, 22 that's correct. 23 "Question: With respect to 24 risk factors of ovarian cancer, you have</p>
Page 215	Page 217
<p>1 don't have the deposition. If you 2 want to attach that or show him 3 the copy. 4 MR. GOLOMB: I'm handing you 5 the -- 6 BY MR. GOLOMB: 7 Q. It was a simple question, 8 and here's what I'm referring to, which 9 is the front page of the deposition 10 transcript. 11 A. That is the front page. 12 That appears to be the front page. Yes, 13 correct. 14 Q. At 8:57 a.m.? 15 A. That's what it says. 16 Q. Okay. And if we look at the 17 final page of the deposition -- well, 18 near the final page, it says, "Whereupon, 19 the deposition was concluded at 20 12:18 p.m." 21 Is that consistent with your 22 recollection, that the deposition took 23 about three and a half, three and a 24 quarter hours?</p>	<p>1 not provided risk factors for ovarian 2 cancer in your report; is that correct? 3 "Answer: I have not listed 4 them. That's correct. 5 "Question: And then the 6 nature of talc from a toxicology 7 standpoint, you've not provided an 8 examination of the toxicology of talc in 9 your report; is that correct?" 10 And your answer was: 11 "That's correct." 12 And I just want to confirm 13 that that was true on June 8th of 2017 as 14 it referred to your earlier reports, and 15 that's true today as it applies to your 16 February 25, 2019, report; is that 17 correct? 18 MR. HEGARTY: Objection. 19 MR. LOCKE: Objection. 20 There are actually multiple 21 issues, I won't get into them, 22 but... 23 Yeah, and you're only 24 reading half a page of a 100-plus</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 218</p> <p>1 page deposition, I'm sure.</p> <p>2 MR. GOLOMB: Feel free to --</p> <p>3 on redirect, if you're going to do</p> <p>4 one, to ask him whatever you want</p> <p>5 about that deposition.</p> <p>6 MR. LOCKE: And you should</p> <p>7 feel free to ask him questions</p> <p>8 about his report here and not his</p> <p>9 deposition there, but again...</p> <p>10 MR. GOLOMB: They're not</p> <p>11 mutually exclusive. That's going</p> <p>12 to happen. Be patient.</p> <p>13 THE WITNESS: You have read</p> <p>14 this correctly.</p> <p>15 BY MR. GOLOMB:</p> <p>16 Q. Okay. And my -- and my</p> <p>17 question was, that was true then as it</p> <p>18 relates to your report and your testimony</p> <p>19 in 2017, and that's true now as it</p> <p>20 relates to your 2019 report and your</p> <p>21 testimony here today?</p> <p>22 MR. LOCKE: Objection. His</p> <p>23 opinions are reflected in his</p> <p>24 report, Exhibit 7.</p>	<p style="text-align: right;">Page 220</p> <p>1 BY MR. GOLOMB:</p> <p>2 Q. Right. And in fact, you</p> <p>3 quoted in part some of the basis for</p> <p>4 their conclusions in your report of 2019?</p> <p>5 A. I did quote from some of</p> <p>6 them, yes.</p> <p>7 Q. Okay. So let's go back to</p> <p>8 Exhibit 7, which is your report dated</p> <p>9 February 25, 2019. On the first page you</p> <p>10 have a footnote there.</p> <p>11 Do you see that?</p> <p>12 A. Yes.</p> <p>13 Q. And the footnote says,</p> <p>14 "Along with the principles of toxicology</p> <p>15 e.g., dose-response, toxicokinetics, and</p> <p>16 risk assessment, e.g., basis of risk</p> <p>17 extrapolation, my teaching includes the</p> <p>18 following topics of possible relevance to</p> <p>19 the present matter: Design, development</p> <p>20 and interpretation of epidemiological</p> <p>21 studies, e.g., cohort versus</p> <p>22 case-control, prospective versus</p> <p>23 retrospective, causal inference, e.g.,</p> <p>24 Hill's Postulates, Koch's Postulates, and</p>
<p style="text-align: right;">Page 219</p> <p>1 MR. HEGARTY: Objection.</p> <p>2 THE WITNESS: I've explained</p> <p>3 that I was not -- I explained that</p> <p>4 I was asked to discuss whether,</p> <p>5 when and by whom it had been</p> <p>6 determined that perineal use of</p> <p>7 talc-containing powder causes</p> <p>8 ovarian cancer.</p> <p>9 I was not asked to opine</p> <p>10 about specific risk factors, other</p> <p>11 than ovarian cancer.</p> <p>12 And I was not asked to opine</p> <p>13 on causality from the standpoint</p> <p>14 of the methods used by those</p> <p>15 authors, although I looked at them</p> <p>16 and considered them.</p> <p>17 BY MR. GOLOMB:</p> <p>18 Q. Right. You were asked to</p> <p>19 opine on what others have said about the</p> <p>20 causality?</p> <p>21 MR. LOCKE: Objection.</p> <p>22 THE WITNESS: And I also</p> <p>23 read the basis for their</p> <p>24 conclusions.</p>	<p style="text-align: right;">Page 221</p> <p>1 biological models of cancer."</p> <p>2 Did I read that correctly?</p> <p>3 A. You read that correctly.</p> <p>4 Q. You -- you are not offering</p> <p>5 an opinion on the hierarchy of evidence,</p> <p>6 correct?</p> <p>7 MR. LOCKE: Objection.</p> <p>8 THE WITNESS: I am not</p> <p>9 depending upon that.</p> <p>10 BY MR. GOLOMB:</p> <p>11 Q. Well, not depending on it</p> <p>12 and not offering an opinion on it at all</p> <p>13 are two different questions, correct?</p> <p>14 MR. LOCKE: Objection.</p> <p>15 THE WITNESS: Yes.</p> <p>16 BY MR. GOLOMB:</p> <p>17 Q. Do you offer an opinion</p> <p>18 anywhere in this 13-page report about</p> <p>19 your opinion of the hierarchy of</p> <p>20 evidence?</p> <p>21 A. I have not specifically</p> <p>22 opined about that.</p> <p>23 Q. Okay. And you are, and</p> <p>24 again, this may be repetitive, and I</p>

Jonathan Borak, M.D., DABT

Page 222	Page 224
<p>1 apologize. But you do not do a Bradford 2 Hill analysis? 3 MR. LOCKE: Objection. 4 THE WITNESS: Yes, I did not 5 do a Bradford Hill analysis. 6 BY MR. GOLOMB: 7 Q. Okay. And in fact, the only 8 place where Bradford Hill was even 9 referenced in the body of your report is 10 in the -- in this footnote where you 11 reference the -- Hill's postulates? 12 MR. LOCKE: Objection. 13 THE WITNESS: I did not do a 14 Bradford Hill analysis. 15 BY MR. GOLOMB: 16 Q. My question was, the only 17 place in your report where Hill is even 18 mentioned is in that footnote. 19 A. That is not a question. 20 Q. That was my question? 21 A. That's a statement. 22 Q. Isn't that correct? 23 A. Yes, that's correct. 24 Q. Thank you. And I just want</p>	<p>1 A. Although the names may be in 2 the specific, I'm not sure. But you've 3 got that in your -- with your materials. 4 Q. Well, I've asked you about 5 Dr. Smith-Bindman, do you remember -- 6 A. I remember her -- 7 Q. -- reviewing her expert 8 report? 9 Do you remember reviewing 10 her expert report? 11 A. I -- I may very well. I 12 have to look. I don't remember. 13 Q. Do you remember Dr. Moorman, 14 M-O-O-R-M-A-N? 15 A. I -- I remember the name, 16 but I couldn't -- at the moment, I would 17 not be able to tell you the content of 18 the report. 19 Q. Dr. McTiernan? 20 A. I have reviewed 21 Dr. McTiernan's report. 22 Q. Dr. Siemiatycki? 23 A. I know I have read two of 24 those.</p>
Page 223	Page 225
<p>1 to be clear. When you go to Page 2 your 2 report, Paragraph 9, you mentioned that 3 you considered expert reports produced 4 both in the federal MDL, as well as prior 5 talc ovarian cancer litigation, right? 6 And so, which means to me, correct me if 7 I'm wrong, that means the expert reports 8 in Oules, in D.C., which we've already 9 referred to, correct? 10 MR. HEGARTY: Objection. 11 THE WITNESS: You've 12 previously referred to, correct. 13 BY MR. GOLOMB: 14 Q. And Mr. Locke also referred 15 to a previous report in the New Jersey 16 state litigation. Did you read -- did 17 you read the expert reports of the 18 plaintiffs' experts from the New Jersey 19 state court litigation? 20 A. I very well may have. I 21 have provided to you a list of materials 22 considered. But I don't know them by the 23 names specifically. 24 Q. Okay?</p>	<p>1 Q. Dr. Song? 2 A. I think I have reviewed 3 that. 4 Q. Dr. Colditz? 5 A. I certainly have reviewed a 6 number of his things. 7 Q. Did you know Dr. Colditz 8 before this litigation? 9 A. Only by name. 10 Q. And like Dr. Siemiatycki -- 11 A. When you say this 12 litigation, Mr. -- I thought Dr. Colditz 13 was not involved in this MDL. 14 Q. Did -- did you know who 15 Dr. Colditz was before you were involved 16 in any form or fashion in the talc 17 litigation? 18 A. Yes, of course. 19 Q. Okay. When you say yes of 20 course, what do you mean? 21 A. I mean he's very well known. 22 Q. Very well known, very well 23 respected, correct? 24 MR. HEGARTY: Objection.</p>

Jonathan Borak, M.D., DABT

Page 226	Page 228
<p>1 MR. LOCKE: Objection.</p> <p>2 THE WITNESS: He's very well</p> <p>3 known.</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. Very well respected?</p> <p>6 A. Very possibly.</p> <p>7 Q. Dr. Cramer, did you read</p> <p>8 his -- his reports?</p> <p>9 A. I've read a number of his</p> <p>10 reports.</p> <p>11 Q. Okay. And, in fact, you</p> <p>12 know that Dr. Cramer has been studying</p> <p>13 and researching the association between</p> <p>14 talc and ovarian cancer since at least</p> <p>15 1982, correct?</p> <p>16 A. Yes --</p> <p>17 MR. HEGARTY: Objection.</p> <p>18 THE WITNESS: -- Dr. Cramer</p> <p>19 has been advocating causes of</p> <p>20 ovarian cancer, different ones,</p> <p>21 periodically, for a number of</p> <p>22 years as well.</p> <p>23 BY MR. GOLOMB:</p> <p>24 Q. Okay. And -- and you -- and</p>	<p>1 Q. Well, did -- do you know as</p> <p>2 you sit here today whether or not</p> <p>3 Dr. Cramer wrote more than one article on</p> <p>4 the association between talc and ovarian</p> <p>5 cancer in 1999?</p> <p>6 A. I do not know.</p> <p>7 Q. Okay.</p> <p>8 MR. LOCKE: Would now be a</p> <p>9 good time to take our lunch break?</p> <p>10 MR. GOLOMB: Sure.</p> <p>11 MR. LOCKE: Should we --</p> <p>12 before we go, let me just check</p> <p>13 and make sure it's out there.</p> <p>14 THE VIDEOGRAPHER: We are</p> <p>15 going off record. The time is</p> <p>16 12:28 p.m.</p> <p>17 - - -</p> <p>18 (Lunch break.)</p> <p>19 - - -</p> <p>20 THE VIDEOGRAPHER: We're</p> <p>21 going back on record. Beginning</p> <p>22 of Media File Number 3. The time</p> <p>23 is 1:10.</p> <p>24 BY MR. GOLOMB:</p>
Page 227	Page 229
<p>1 one of the reports you read was his 1999</p> <p>2 study, correct?</p> <p>3 A. I'm sure that I did. I</p> <p>4 think I've read almost everything that</p> <p>5 Dr. Cramer has written on ovarian cancer.</p> <p>6 Q. Okay. And --</p> <p>7 A. But specifically is it on my</p> <p>8 list?</p> <p>9 MR. LOCKE: It wouldn't be</p> <p>10 there.</p> <p>11 THE WITNESS: Okay.</p> <p>12 BY MR. GOLOMB:</p> <p>13 Q. Well, do -- do you recall --</p> <p>14 A. I know I had a Cramer '99 is</p> <p>15 perhaps -- would you tell me whether you</p> <p>16 are talking about the one which is</p> <p>17 Number 5?</p> <p>18 Q. Well, I -- I just referred</p> <p>19 to the 1999 study. Is that something you</p> <p>20 would --</p> <p>21 A. I understand. I don't know</p> <p>22 how many he wrote in 1999. I have one of</p> <p>23 his on my list from 1999. I'm asking if</p> <p>24 that's what you're asking me about.</p>	<p>1 Q. Now, Dr. Borak, we were</p> <p>2 talking about Exhibit 7 which is your</p> <p>3 report. And before I go back to that, I</p> <p>4 know we -- we pretty exhaustively went</p> <p>5 through your pre-MDL billing. And I want</p> <p>6 to talk a little bit about your -- the</p> <p>7 billing from -- that begins May 26 of</p> <p>8 2017 -- of 2017, which is about two weeks</p> <p>9 before your Oules deposition. And that</p> <p>10 goes through February 25th of 2019, which</p> <p>11 is Exhibit 3.</p> <p>12 (Document marked for</p> <p>13 identification as Exhibit</p> <p>14 Borak-3.)</p> <p>15 BY MR. GOLOMB:</p> <p>16 Q. And I just wanted to make</p> <p>17 sure that -- because before you seemed a</p> <p>18 little bit surprised at that total, which</p> <p>19 is an additional \$283,223.25.</p> <p>20 A. I -- I'm still surprised,</p> <p>21 but thank you.</p> <p>22 Q. Okay. Well, just to be</p> <p>23 clear, you -- you submit your billing on</p> <p>24 Jonathan Borak & Company to TASA and then</p>

58 (Pages 226 to 229)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 230</p> <p>1 TASA sends their bill to Mr. Locke, 2 correct? 3 A. That's correct. 4 Q. All right. And I also made 5 a statement before and I wanted to make 6 sure you knew where that came from. 7 MR. GOLOMB: Let's mark -- 8 we'll have this marked as 9 Exhibit 33. 10 (Document marked for 11 identification as Exhibit 12 Borak-33.) 13 BY MR. GOLOMB: 14 Q. Which is a memorandum from 15 Benjamin Isser, who is the attorney 16 sitting to my right, who at my request 17 went through the invoices for all the 18 plaintiffs' experts on -- all the 19 plaintiff epidemiologists, and through 20 their testimony in the depositions they 21 came, because I made a statement to you 22 that your billing was -- was close to 23 \$600,000 and was more than the -- all the 24 epidemiologists combined. And I wanted</p>	<p style="text-align: right;">Page 232</p> <p>1 start writing your report? 2 MR. LOCKE: Objection. 3 THE WITNESS: I wasn't asked 4 to write a report until I had done 5 a great deal of reading. I don't 6 remember when I was first asked to 7 write a report. I know when the 8 first report generally was 9 delivered. You -- you've got a 10 report at least with Oules date on 11 it. And I can't recall 12 specifically the steps that led up 13 to the day that I was asked to 14 write it. 15 BY MR. GOLOMB: 16 Q. So you don't -- so you don't 17 remember what you did other than a lot of 18 reading before you started writing your 19 MDL report? 20 MR. LOCKE: Objection. 21 THE WITNESS: I -- I read a 22 great deal. I organized that. 23 I'm not quite sure what else 24 you're asking about.</p>
<p style="text-align: right;">Page 231</p> <p>1 you to see where that came from. 2 And as you can see, their 3 total billing between four of them is 4 less than \$450,000. 5 A. Yeah, so I see. 6 Q. Okay. 7 MR. LOCKE: I'm just going 8 to object. You know, we haven't 9 had a chance to verify any of 10 that. 11 BY MR. GOLOMB: 12 Q. Well, let's -- let's go back 13 to your report, Exhibit 7, February 25, 14 2019. 15 Beginning with the -- the 16 background on Page 3 under Subsection 3. 17 A. Yes. 18 Q. So, we talked about, my 19 words, the assignment you got from 20 Mr. Locke, followed by your review, as 21 you said, of a lot of reading. 22 A. Yes. 23 Q. Is there anything else that 24 you did before you were prepared to -- to</p>	<p style="text-align: right;">Page 233</p> <p>1 BY MR. GOLOMB: 2 Q. Okay. Well, as we indicated 3 earlier, the literature went back at 4 least as far as 1972, right? 5 MR. LOCKE: Objection. 6 THE WITNESS: Please, go 7 ahead. 8 BY MR. GOLOMB: 9 Q. Is that correct? 10 A. I think that it -- at least 11 1972. 12 Q. Okay. Do you remember the 13 Henderson study? 14 A. Yes. I recall a study by 15 Henderson. 16 Q. Do you recall what the 17 Henderson study is? 18 A. I think it may have been a 19 report of histology of ovaries looking at 20 particulates. But I'm not positive that 21 that's exactly how to describe it. 22 Q. Okay. And that was in 1972? 23 A. I accept that. 24 Q. Okay. And Cramer's first</p>

Jonathan Borak, M.D., DABT

Page 234	Page 236
<p>1 study was 1982.</p> <p>2 A. I think that's correct.</p> <p>3 Q. All right. And so there was</p> <p>4 a whole body of evidence between 1972</p> <p>5 when the Henderson study came out -- and</p> <p>6 by body of evidence I'm talking about at</p> <p>7 least a couple dozen studies,</p> <p>8 case-control studies as well as cohort</p> <p>9 studies, that came out between 2000 --</p> <p>10 I'm sorry, between 1972 and January of</p> <p>11 2017, correct?</p> <p>12 MR. LOCKE: Objection.</p> <p>13 THE WITNESS: Oh yes. Yes,</p> <p>14 yes, yes.</p> <p>15 BY MR. GOLOMB:</p> <p>16 Q. All right. And that was all</p> <p>17 stuff that you had reviewed to write your</p> <p>18 January or February of 2017 report,</p> <p>19 right?</p> <p>20 MR. LOCKE: Or March.</p> <p>21 Objection.</p> <p>22 THE WITNESS: Yes. I</p> <p>23 reviewed a great deal of that. I</p> <p>24 provided to you lists of the</p>	<p>1 You can keep it.</p> <p>2 BY MR. GOLOMB:</p> <p>3 Q. You had mentioned earlier</p> <p>4 that you kept notes of when you read</p> <p>5 stuff. Do you remember that testimony</p> <p>6 earlier today?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. And the notes that</p> <p>9 you keep, are they handwritten notes or</p> <p>10 are they on a computer?</p> <p>11 A. They're usually on a</p> <p>12 computer.</p> <p>13 Q. All right. And are those</p> <p>14 notes -- would those notes still be</p> <p>15 available?</p> <p>16 A. I suppose so, but I don't</p> <p>17 know it.</p> <p>18 Q. Would those notes be</p> <p>19 available to you from -- the notes that</p> <p>20 you wrote before January of 2017 when you</p> <p>21 went to write your 2019 report?</p> <p>22 A. The answer is possibly.</p> <p>23 Q. Okay. So wouldn't it not be</p> <p>24 common sense that you wouldn't need to</p>
Page 235	Page 237
<p>1 materials that I've reviewed, if</p> <p>2 that makes this easier for you.</p> <p>3 BY MR. GOLOMB:</p> <p>4 Q. And well over 90 percent of</p> <p>5 what you reviewed for your MDL report was</p> <p>6 the same stuff that you had reviewed for</p> <p>7 your 2017 report, and was the same stuff</p> <p>8 that had been out there since 1972?</p> <p>9 MR. LOCKE: Objection.</p> <p>10 THE WITNESS: Are you asking</p> <p>11 me a question?</p> <p>12 BY MR. GOLOMB:</p> <p>13 Q. Isn't that true?</p> <p>14 A. I read a huge number of</p> <p>15 expert reports and deposition transcripts</p> <p>16 because Mr. Locke sent them to me, all</p> <p>17 dated subsequent.</p> <p>18 Q. All dated subsequent to</p> <p>19 what?</p> <p>20 A. To the Oules report.</p> <p>21 Q. Okay. So --</p> <p>22 MR. LOCKE: Excuse me, can I</p> <p>23 borrow that pen for a second?</p> <p>24 THE WITNESS: Absolutely.</p>	<p>1 re-read everything between 1972 and 2017</p> <p>2 in order to generate a report in 2019?</p> <p>3 MR. LOCKE: Objection.</p> <p>4 THE WITNESS: I don't</p> <p>5 understand what you're asking.</p> <p>6 BY MR. GOLOMB:</p> <p>7 Q. All right. You had a body</p> <p>8 of literature. You're -- put yourself in</p> <p>9 January of 2017. Are you with me?</p> <p>10 A. I am in 2017 with you, sir.</p> <p>11 Q. Okay. You are writing a</p> <p>12 report in the Oules case.</p> <p>13 A. Yes, sir.</p> <p>14 Q. And you've reviewed a body</p> <p>15 of literature between 1972 and 2017 in</p> <p>16 order to write your Oules report,</p> <p>17 correct?</p> <p>18 MR. LOCKE: Objection.</p> <p>19 THE WITNESS: Yes.</p> <p>20 BY MR. GOLOMB:</p> <p>21 Q. Now, forward from January of</p> <p>22 2017, at some point you learn that</p> <p>23 there's an MDL, and you learn that you've</p> <p>24 now been retained by Mr. Locke to serve</p>

60 (Pages 234 to 237)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 238</p> <p>1 as an expert, much the way that you did 2 in the Oules case, in the MDL, correct? 3 MR. LOCKE: Objection. 4 THE WITNESS: Not precisely 5 in that way, but I understand what 6 you're saying. I'll agree with 7 you. 8 BY MR. GOLOMB: 9 Q. What do you mean not 10 precisely in that way? 11 A. In the interim period I was 12 asked by Mr. Locke to do other things. 13 Q. Other things related to 14 talc? 15 A. Related to talc, but not 16 related to the MDL. 17 Q. Okay. But my question is 18 very simply that if -- you know, we're 19 talking about a two-year time period, a 20 time period where you have extensive -- 21 ostensibly extensive notes from the stuff 22 that you read between 1972 and 2017, and 23 now you're reading stuff now to write a 24 report in the MDL in 2019, correct?</p>	<p style="text-align: right;">Page 240</p> <p>1 perineal talc -- that perineal use of 2 talc-containing powder caused ovarian 3 cancer. 4 And so in that context, I 5 reviewed large numbers of papers that 6 were potentially relevant to that. In 7 addition I looked at papers that 8 described risk markers and other 9 considerations that would have 10 potentially influenced the interpretation 11 of the earlier papers that I had 12 reviewed. 13 Occasionally, I had to go 14 back and re-read, for example, to 15 remember the details. In some cases, so 16 and so would write something and would 17 say something about a paper which I had 18 read earlier. And it would be necessary 19 for me to go back and re-read the paper. 20 As a result, for example, I 21 suspect that I have read the Terry study, 22 and the Houghton study and the Gates 23 study and the Gertig study and the IARC 24 report and the Langseth study and all of</p>
<p style="text-align: right;">Page 239</p> <p>1 MR. LOCKE: Objection. 2 THE WITNESS: I am still 3 confused. Are you asking me 4 whether in 2018 I re-read the 5 stuff that I had written about in 6 2017? 7 BY MR. GOLOMB: 8 Q. Correct. 9 A. No. 10 Q. You didn't -- you didn't 11 re-read it? 12 A. Well, I may have re-read it, 13 but I wasn't building up large amounts of 14 time by re-reading. 15 On a monthly basis, as I 16 described earlier, I had literature 17 searches done on talc, ovarian cancer, 18 talc and cancer, and I read anywhere 19 between 20 and 40 or more articles per 20 month to try to make sure that I was 21 current in terms of fulfilling the task 22 that I was asked to do, which was to 23 repeat -- to evaluate whether, when, and 24 by whom it had been determined that</p>	<p style="text-align: right;">Page 241</p> <p>1 those multiple times. 2 But I did that because 3 perhaps somebody in 2017 or 2018 said 4 something that related to one of those 5 studies, and the details were not clearly 6 in my head. 7 Q. And then at some point in 8 late 2018, early 2019, you sat down to 9 begin to generate your February 25, 2019, 10 report, correct? 11 A. Again, not exactly. I had a 12 report that was the Oules report and may 13 have been updated for New Jersey. I'm 14 sorry, the chronology of that is not 15 clear to me. But whatever. 16 I had at some point a most 17 recent final report. Okay. And as I 18 continued to read, I would add or change 19 that earlier report, so that my writing 20 of a report was in a large sense an 21 ongoing process over a period of years, 22 because every month it was possible that 23 somebody was going to update something or 24 add something new.</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 242</p> <p>1 In addition to which, as you</p> <p>2 are already aware, my report also speaks</p> <p>3 about certain websites which I looked at</p> <p>4 with a periodic frequency to know when</p> <p>5 those were changed. And when they</p> <p>6 changed, I changed my report.</p> <p>7 Q. And one of the websites that</p> <p>8 you referred to in the background of your</p> <p>9 report, under Paragraph Number 12, is the</p> <p>10 NCI website, correct?</p> <p>11 MR. LOCKE: Objection.</p> <p>12 THE WITNESS: Paragraph</p> <p>13 Number 12?</p> <p>14 BY MR. GOLOMB:</p> <p>15 Q. Paragraph Number 12 on Page</p> <p>16 3.</p> <p>17 A. Yes that's an example of</p> <p>18 updating it.</p> <p>19 Q. Okay. Well, that was 2014.</p> <p>20 That predated both your reports, right?</p> <p>21 MR. LOCKE: Objection.</p> <p>22 THE WITNESS: The end of</p> <p>23 that paragraph, which you were</p> <p>24 just reading says, "Very recently,</p>	<p style="text-align: right;">Page 244</p> <p>1 and I'll answer.</p> <p>2 Q. And I'm going to give you</p> <p>3 crystal clear clarity --</p> <p>4 A. Dynamite.</p> <p>5 Q. -- if I don't, just put up</p> <p>6 your hand or, you know, do something and</p> <p>7 let me know that it's not clear to you.</p> <p>8 A. Thank you.</p> <p>9 Q. Okay. Did you review any</p> <p>10 NCI website other than the one from</p> <p>11 12/21/18 that's referred to in your</p> <p>12 report?</p> <p>13 A. And to answer that, I asked</p> <p>14 you to give me from my report the list of</p> <p>15 the websites that I've cited.</p> <p>16 The answer is yes, but to</p> <p>17 give you details, I need to look at the</p> <p>18 component of my report that summarized</p> <p>19 what was published on various websites.</p> <p>20 Q. And where would it be in</p> <p>21 your report?</p> <p>22 A. It would have been appendix</p> <p>23 or exhibit, however I referred to it --</p> <p>24 Number 2 was materials considered.</p>
<p style="text-align: right;">Page 243</p> <p>1 in a statement dated 12/21/18."</p> <p>2 BY MR. GOLOMB:</p> <p>3 Q. Okay. And had you reviewed</p> <p>4 the website before 12/21/18?</p> <p>5 A. Yes. But not that version</p> <p>6 of the website.</p> <p>7 Q. That wasn't my question. My</p> <p>8 question was, had you -- had you reviewed</p> <p>9 the NCI website between the date that you</p> <p>10 use here in 2014 and December 21st, 2018?</p> <p>11 MR. HEGARTY: Objection.</p> <p>12 THE WITNESS: Forgive me.</p> <p>13 2014 pertains to an editorial</p> <p>14 published in the Journal of the</p> <p>15 National Cancer Institute. It has</p> <p>16 nothing to do with the website.</p> <p>17 So re-ask your question, please.</p> <p>18 BY MR. GOLOMB:</p> <p>19 Q. My question is a very --</p> <p>20 I'll make it as simple --</p> <p>21 A. It's not simple --</p> <p>22 Q. -- as possible?</p> <p>23 A. -- because you've miscited</p> <p>24 one of the dates. I just want clarity,</p>	<p style="text-align: right;">Page 245</p> <p>1 Q. Yeah.</p> <p>2 A. Number 3 was chronology. It</p> <p>3 may have been in the chronology or there</p> <p>4 may have been a separate section that had</p> <p>5 the websites.</p> <p>6 Q. All right. Let -- let's</p> <p>7 talk about your attachments for a second.</p> <p>8 We'll come back to Paragraph 12 of your</p> <p>9 report.</p> <p>10 MR. GOLOMB: Can I have</p> <p>11 Exhibit 8, please.</p> <p>12 (Document marked for</p> <p>13 identification as Exhibit</p> <p>14 Borak-8.)</p> <p>15 BY MR. GOLOMB:</p> <p>16 Q. So this is your reference</p> <p>17 list, correct?</p> <p>18 A. Yes, that's my reference</p> <p>19 list.</p> <p>20 MR. LOCKE: With some marks</p> <p>21 on it.</p> <p>22 THE WITNESS: With some</p> <p>23 marks on it.</p> <p>24 BY MR. GOLOMB:</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 246</p> <p>1 Q. And your reference list 2 begins, if you look at the lower 3 right-hand corner, of -- on Page 14 of 4 your report, correct? 5 A. Yes. 6 Q. So to be clear, Pages 1 7 through 13 are the body of your report 8 that includes your conclusions, correct? 9 A. Yes. 10 Q. And so the first page after 11 the body of your report in the signature 12 line is this reference list, correct? 13 A. Yes. 14 Q. And if I understand this 15 reference list correctly, as you go 16 through the body of your report, you 17 identify by number, 1 through 50, this -- 18 the references that are Number 1 through 19 50 on this reference list? 20 A. Correct. 21 Q. Okay. And so, if we look, 22 for -- as an example, if we look at 23 Page 3, Paragraph 12 of your report, the 24 second paragraph of Page 12 that begins</p>	<p style="text-align: right;">Page 248</p> <p>1 13-page report. 2 A. These are the references I 3 specifically cited in the body of my 4 report. 5 Q. Right. And did you cite to 6 any other NCI website other than the one 7 dated 12/21/18? 8 A. If you would give me the 9 list of the websites which I specified -- 10 Q. My -- my question is -- is 11 simply, in the body of your report, did 12 you refer to any other NCI website other 13 than the 2000 -- 12/21/18 website? 14 You've got -- you've got 15 Exhibit 7, the report, and Exhibit 8, the 16 reference list. 17 A. I appreciate what you're 18 saying, and I'm looking for something 19 which I think will clarify, if I may. 20 There was an attachment 21 which included the text which I had 22 copied. That was my cut and paste. I 23 copied from those websites the full text 24 that was listed. And it was an</p>
<p style="text-align: right;">Page 247</p> <p>1 with the word despite? 2 A. Yes. 3 Q. The last sentence says, 4 "Very recently in a statement dated 5 12/21/18, the National Cancer Institute 6 concluded 'the weight of evidence does 7 not support an association between 8 perineal talc exposure and an increased 9 risk of ovarian cancer.'" 10 And there's a Number 3, 11 correct? 12 A. Yes, that's correct. 13 Q. So hopefully if -- if this 14 is accurate, if you look at Number 3 on 15 your reference list, that will refer to 16 the National Cancer Institute website 17 dated 2018 and it does -- 18 A. Yes, that's correct. 19 Q. -- right? 20 A. Yes. 21 Q. All right. Now, on -- in 22 this reference list is the exclusive list 23 of -- of journals, websites, et cetera, 24 that you referred to in the body of your</p>	<p style="text-align: right;">Page 249</p> <p>1 attachment. But of course it's not 2 attached to this, which you've given me, 3 which is only 13 pages. And such an 4 attachment was also included with the 5 Oules report. 6 Q. My -- my question was very 7 simply, did you refer to any other -- any 8 other NCI website other than the 12/21/18 9 NCI website in the body of your 13-page 10 report. 11 A. In the body of the report I 12 think I referred to a compilation of 13 website statements, but did not mention 14 the NCI by name. 15 Q. Let -- let me define -- I 16 apologize. I wasn't clear enough for 17 you. So let me define what I mean by 18 body of the report. Okay? 19 A. Sure. 20 Q. Do you see Page 1 of the 21 report? 22 A. Yes. 23 Q. Do you see your signature on 24 Page 13 of the report?</p>

Jonathan Borak, M.D., DABT

Page 250	Page 252
<p>1 A. Yes, sir.</p> <p>2 Q. Those two pages and</p> <p>3 everything in between is what I'm</p> <p>4 referring to as the body of the report.</p> <p>5 Do you understand that?</p> <p>6 A. I hear you now.</p> <p>7 Q. Okay. Now, with that as a</p> <p>8 background, is there anything in the body</p> <p>9 of the report that refers to the NCI</p> <p>10 website other than that reference to</p> <p>11 December 21, 2018?</p> <p>12 A. It does not name the NCI</p> <p>13 website anywhere else. It refers</p> <p>14 indirectly in Paragraph 44 where it says,</p> <p>15 "Following the statements from some of</p> <p>16 those websites listed in chronological</p> <p>17 order, the complete statements are</p> <p>18 presented in Attachment 4." And I</p> <p>19 believe that I've got NCI 2018, 2019. I</p> <p>20 don't know whether I have an earlier NCI</p> <p>21 statement on that Attachment 4.</p> <p>22 Q. Okay. So, for the record,</p> <p>23 you're referring to Page 12 of your</p> <p>24 report, correct?</p>	<p>1 Q. Okay. And you know that --</p> <p>2 do you know that ones that predate</p> <p>3 December 21, 2018, identify perineal use</p> <p>4 of talc as a risk of ovarian cancer?</p> <p>5 MR. LOCKE: Objection.</p> <p>6 THE WITNESS: I don't</p> <p>7 remember that to be so.</p> <p>8 BY MR. GOLOMB:</p> <p>9 Q. Okay. You -- you've said,</p> <p>10 correct me if I'm wrong, did you</p> <p>11 review -- you reviewed some prior trial</p> <p>12 testimony in this case?</p> <p>13 A. Which case?</p> <p>14 Q. You know that --</p> <p>15 A. There hasn't been a trial as</p> <p>16 I understand it.</p> <p>17 Q. You know that no MDL cases</p> <p>18 have been tried yet, correct?</p> <p>19 A. There have been depositions.</p> <p>20 Q. Do you know the difference</p> <p>21 between a trial and deposition?</p> <p>22 A. I believe I do, sir.</p> <p>23 Q. Okay. Trials -- for ease of</p> <p>24 reference, trials are things that take</p>
Page 251	Page 253
<p>1 A. That's correct.</p> <p>2 Q. And about three-quarters of</p> <p>3 the way down on Paragraph 44, it refers</p> <p>4 to the National Cancer Institute 2018 --</p> <p>5 A. Yes.</p> <p>6 Q. -- correct?</p> <p>7 And that's your reference</p> <p>8 Number 46?</p> <p>9 A. Yes.</p> <p>10 Q. And then if you go to</p> <p>11 Page 17, which includes the reference of</p> <p>12 Number 46, that's 2018, right, it doesn't</p> <p>13 say anything about 2019?</p> <p>14 A. If you look at reference</p> <p>15 Number 49 --</p> <p>16 Q. Yeah.</p> <p>17 A. -- it refers to the National</p> <p>18 Cancer Institute website. And it's 2019.</p> <p>19 Q. Okay.</p> <p>20 A. But you're asking me about</p> <p>21 older ones. And I'm saying that I only</p> <p>22 have here the most recent. I may have</p> <p>23 referred to older ones in my attachment,</p> <p>24 I think it was 4, but I'm not sure.</p>	<p>1 place in -- in a courtroom in front of a</p> <p>2 jury?</p> <p>3 A. Thank you. I appreciate</p> <p>4 that explanation.</p> <p>5 Q. Depositions are something</p> <p>6 that take place like in a conference room</p> <p>7 with just lawyers like here today?</p> <p>8 A. There are nonlawyers here</p> <p>9 also.</p> <p>10 Q. All right. And so you are</p> <p>11 aware that there have been no actual</p> <p>12 trials in the MDL yet?</p> <p>13 A. That is my understanding.</p> <p>14 Q. Okay. And so the -- the</p> <p>15 trials that have taken place have been</p> <p>16 like in state court in St. Louis, state</p> <p>17 court in Los Angeles, are you aware of</p> <p>18 that?</p> <p>19 MR. HEGARTY: Objection.</p> <p>20 THE WITNESS: I am aware of</p> <p>21 the fact that there have been</p> <p>22 trials. I don't have the</p> <p>23 knowledge as to which courts they</p> <p>24 were in.</p>

64 (Pages 250 to 253)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 254</p> <p>1 BY MR. GOLOMB: 2 Q. Okay. And you -- and 3 we'll -- we'll -- and you've actually 4 referred to some of the -- the trial 5 testimony and, in fact, trial results 6 in -- throughout your -- your report, do 7 you recall that? 8 A. I'm surprised that I 9 referred to the trial results. Tell me 10 what you mean. I may have. 11 Q. Well, if you -- if you don't 12 recall that, then just tell me you don't 13 recall that. We'll -- we'll go through 14 it. 15 A. Please. I don't recall 16 that. I -- 17 Q. Do you recall reading -- 18 referencing the Ritsesund case and -- and 19 referring to some of the testimony in the 20 Ritsesund case? 21 MR. HEGARTY: Objection. 22 THE WITNESS: I may very 23 well. I'd have to look and see. 24 I don't remember.</p>	<p style="text-align: right;">Page 256</p> <p>1 BY MR. GOLOMB: 2 Q. Well, you're -- you're 3 now -- you're familiar with the NCI 4 website? 5 A. Yes. 6 Q. Okay. And you know what a 7 PDQ is? 8 A. Yes. 9 Q. What's a PDQ? 10 A. It's a document which NCI 11 prepares, I think probably for both 12 physicians and for patients. But they 13 are kind of Q&As. 14 Q. Okay. And, in fact, 15 there -- there has been testimony in the 16 case that it's not for patients, it's for 17 physicians, it's for scientists -- 18 A. That may well be. 19 Q. -- who have a logon to get 20 onto the PDQ. 21 A. I'm sorry? 22 MR. HEGARTY: Objection. 23 MR. LOCKE: Objection. 24 BY MR. GOLOMB:</p>
<p style="text-align: right;">Page 255</p> <p>1 BY MR. GOLOMB: 2 Q. Okay. Does that name sound 3 familiar to you? 4 A. It sounds like something I 5 have a file on, but I don't remember the 6 details. 7 Q. Okay. Let -- let me -- 8 MR. GOLOMB: Can we turn on 9 the Elmo. 10 BY MR. GOLOMB: 11 Q. I've marked an Exhibit 31 12 which was previously marked as a trial 13 exhibit as Plaintiffs' Exhibit 14 Number 607. 15 Let me show it to you and 16 then I'll put it up on the Elmo. It's a 17 seven-page exhibit, and ask you if you've 18 ever seen that before. 19 (Document marked for 20 identification as Exhibit 21 Borak-31.) 22 THE WITNESS: I don't think 23 I recognize it. I don't think 24 I've ever seen it.</p>	<p style="text-align: right;">Page 257</p> <p>1 Q. Who have a login to get onto 2 the PDQ? 3 A. I don't recognize that, but 4 it might be true. 5 Q. Okay. There -- there also 6 are things that are known as snapshots on 7 the NCI website. Are you familiar with 8 that? 9 MR. HEGARTY: Objection. 10 THE WITNESS: Not by name. 11 BY MR. GOLOMB: 12 Q. Okay. And so were you aware 13 that in -- in 2014 that on the 14 physician's data query, the PDQ, that the 15 NCI actually did list talc as a risk of 16 ovarian cancer? 17 MR. HEGARTY: Objection. 18 MR. LOCKE: Objection. 19 THE WITNESS: I don't think 20 I was aware of that. 21 BY MR. GOLOMB: 22 Q. Were you aware in 2015 that 23 the PDQ identified talc as a risk of 24 ovarian cancer?</p>

65 (Pages 254 to 257)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 258</p> <p>1 MR. HEGARTY: Objection. 2 MR. LOCKE: Objection. 3 THE WITNESS: I'm surprised 4 by that. 5 BY MR. GOLOMB: 6 Q. Were you aware in 2017 that 7 talc was listed as -- perineal use of 8 talc was listed as a -- as a risk of 9 cancer, of ovarian cancer? 10 MR. HEGARTY: Objection. 11 MR. LOCKE: Objection. 12 THE WITNESS: I don't recall 13 that. 14 BY MR. GOLOMB: 15 Q. Okay. And so you -- you -- 16 you don't -- you said you -- you haven't 17 heard the term "the snapshot," from the 18 NCI website? 19 A. I -- I know the expression 20 snapshot, but not in the context as you 21 just used it. 22 Q. Okay. Let me -- let me ask 23 you a hypothetical question and see if it 24 at all refreshes your recollection.</p>	<p style="text-align: right;">Page 260</p> <p>1 BY MR. GOLOMB: 2 Q. Are you with me so far? 3 A. I hear what you've said in 4 this hypothetical, yes. 5 Q. Okay. And I -- and I click 6 on that first result that says "Snapshot 7 of Ovarian Cancer." And -- and in the 8 third paragraph of the "Snapshot of 9 Ovarian Cancer," it identifies risks of 10 ovarian cancer. And one of the risks of 11 ovarian cancer is talc. 12 A. Really? 13 MR. HEGARTY: Objection. 14 MR. LOCKE: Objection. 15 BY MR. GOLOMB: 16 Q. And that was on -- on the 17 NCI website up until the point when 18 trials began in this particular 19 litigation. Were you aware of that? 20 MR. HEGARTY: Objection. 21 MR. LOCKE: Objection. 22 THE WITNESS: Of course not. 23 BY MR. GOLOMB: 24 Q. Okay. So you wouldn't know</p>
<p style="text-align: right;">Page 259</p> <p>1 A. Hypothetical question. 2 Q. Hypothetical question. 3 The hypothetical begins 4 with: I'm a woman. 5 A. Okay. 6 Q. And I am a woman that goes 7 on the NCI website, and has a fear that I 8 may have ovarian cancer. 9 And I go on the NCI website 10 to make a determination as to what are 11 the risks of ovarian cancer. And I go 12 onto the homepage of the NCI website. 13 And on the upper right-hand corner, where 14 I can search, I type in the words ovarian 15 cancer. 16 And -- and when I hit 17 search, up on the -- on the search 18 results, on the very first search result 19 is -- is an article called "Snapshot of 20 Ovarian Cancer." 21 Are you with me? 22 MR. HEGARTY: Objection. 23 MR. LOCKE: Objection as 24 well.</p>	<p style="text-align: right;">Page 261</p> <p>1 of any communications that may or may not 2 have existed between the defendants in 3 this case and the NCI in an effort to get 4 that off the website? 5 MR. HEGARTY: Objection. 6 MR. LOCKE: Objection. 7 THE WITNESS: I'm astonished 8 by the possibility. 9 BY MR. GOLOMB: 10 Q. But you didn't know that 11 that was included in the snapshot, right? 12 MR. LOCKE: Objection. 13 MR. HEGARTY: Objection. 14 THE WITNESS: I wasn't aware 15 of the snapshot. 16 BY MR. GOLOMB: 17 Q. And you weren't aware that 18 it was included in the -- in the PDQ? 19 MR. LOCKE: Objection. 20 MR. HEGARTY: Objection. 21 THE WITNESS: No. 22 BY MR. GOLOMB: 23 Q. Let's go back to Page 3 of 24 your report. Actually let's go -- I'm</p>

Jonathan Borak, M.D., DABT

Page 262	Page 264
<p>1 sorry, let's go to Page 4. 2 Okay. Now, this is -- 3 Paragraph 13 and 14 continue in the 4 background of your report, correct? 5 A. I'm sorry? 6 Q. Paragraph 13 and 14 on 7 Page 4 of your report continue with the 8 background section of your report? 9 A. Oh, yeah, yeah, yeah, fine. 10 It's part of the section that I labeled 11 as background, yes, that's correct. 12 Q. Okay. And Paragraph 13, you 13 say, "Nevertheless, many of plaintiff MDL 14 experts have opined that perineal use of 15 talc containing powder can cause ovarian 16 cancer." 17 Did I read -- read that 18 correctly? 19 A. You did. 20 Q. All right. And you then on 21 Paragraph 14 refer to a chronology of 22 opinions, correct? 23 A. Yes. 24 Q. All right. So let's, first</p>	<p>1 THE WITNESS: I -- I don't 2 think that's correct, but I can 3 look. I would be surprised. 4 BY MR. GOLOMB: 5 Q. Okay. 6 A. Oh, I think they referred -- 7 let me look for a second. When I was 8 quoting from a deposition, I would have 9 put -- for example, if you look at 10 Paragraph 20 of my report. 11 BY MR. GOLOMB: 12 Q. Right. 13 A. It speaks of deposition 14 transcript -- of deposition testimony. 15 And it says, Deposition Re: Blaes, Page 16 X, Y, Z. Dr. Colditz said something or 17 other "(Deposition Re: Hogans, Page 18 436)." And then later on it says, 19 "Deposition Re: Blaes, 150, 151." 20 That's simply to indicate, 21 yes, I cited and I believe that those are 22 all on this list. But I did not put them 23 into my numbered reference list, into the 24 paragraph.</p>
Page 263	Page 265
<p>1 of all, go through some of the 2 attachments to your report. Let's look 3 at Exhibit 10. 4 (Document marked for 5 identification as Exhibit 6 Borak-10.) 7 MR. GOLOMB: Mark, I 8 apologize for not having copies of 9 these. I thought I did. 10 BY MR. GOLOMB: 11 Q. Attachment 1 is "Expert 12 Reports, Testimony and Other Related 13 Materials," correct? 14 A. Correct, that's the title. 15 Q. Now, if I -- if I understand 16 this correctly, and correct me if I'm 17 wrong, first of all, none of the -- on 18 the -- on the two-and-a-half-page list 19 that comes under this exhibit, none of -- 20 none of these documents, and I use that 21 term loosely, but none of these documents 22 are referred to specifically in your 23 reference list of 1 through 50, correct? 24 MR. HEGARTY: Objection.</p>	<p>1 MR. LOCKE: For the record, 2 you're referring to Attachment 1 3 when you say "this list." 4 THE WITNESS: I'm sorry. 5 Yes, that's correct. I'm being 6 unclear. 7 You've given me a list from 8 my report. The list is of expert 9 reports, testimony, and other 10 related materials that I reviewed. 11 You asked me whether I had 12 referenced any of these in my 13 report. 14 The answer was yes. I 15 didn't put them in the numbered 16 reference list at the back of the 17 report. I embedded into the 18 paragraph where I cited it, the 19 deposition and the page. 20 BY MR. GOLOMB: 21 Q. And that's Paragraph 20 of 22 your report? 23 A. And other places. I just 24 pointed out one as an example.</p>

67 (Pages 262 to 265)

Jonathan Borak, M.D., DABT

Page 266	Page 268
<p>1 Q. Okay. Where else in your 2 report, do you refer to a portion of the 3 deposition? I see Paragraph 28. I'll 4 help you out. 5 MR. LOCKE: And 24. 6 THE WITNESS: It's been done 7 multiple times. I'm just trying 8 to differentiate between the way 9 in which I referenced a deposition 10 or a testimony and the way that I 11 referenced a published article. 12 It means nothing more than 13 that. I'm just trying to say yes, 14 I did reference and did point to 15 some of those that were on that 16 list. That's the whole purpose of 17 that comment. 18 BY MR. GOLOMB: 19 Q. Okay. So if I understand 20 Attachment 1, Exhibit 10 correctly, this 21 is -- these are not pulled from published 22 articles or journals. This is all 23 litigation related? 24 A. Yes. That's -- pretty much.</p>	<p>1 my list, because I thought you might -- 2 one day I would see you again after many 3 years, and you would ask me what did I 4 read. And I would tell you. 5 Q. All right. And did you 6 refer to that Rothman article in the body 7 of your report? 8 A. I don't believe so, but I'd 9 have to go look. But I doubt it. 10 Q. Okay. And, you know, since 11 Dr. Rothman is a -- is, as you mentioned 12 earlier, a friend of yours, you know that 13 in addition to this unpublished report, 14 that he has written dozens and dozens of 15 published peer-reviewed articles directly 16 related to epidemiology, correct? 17 MR. HEGARTY: Objection. 18 MR. LOCKE: Objection. 19 THE WITNESS: He is a very 20 well-published man. I told you 21 before, I know him, I like him. 22 Exchanged literature. And I have 23 several of his books on my shelf. 24 BY MR. GOLOMB:</p>
Page 267	Page 269
<p>1 Under the "other," there is 2 a notation of websites that I looked at. 3 There is a notation of an unpublished 4 report by Rothman and Pastides. The rest 5 of it was all litigation, I think. 6 And this was a list, which 7 in earlier days, was included in the body 8 of my report, but it got too damn long. 9 Q. So let me ask you about the 10 Rothman reference there. 11 Do you -- you pull out a -- 12 you reference in Exhibit 10 a Rothman 13 article from 2000. 14 A. Well, it wasn't an article. 15 It was an unpublished piece, but yes. 16 Q. Right. And what was the 17 purpose of publishing -- of referring to 18 an unpublished report? 19 A. Truthfulness. 20 Q. Excuse me? 21 A. Truthfulness. 22 Q. Okay. 23 A. I was given a copy of this 24 report, and I read it. And I put it on</p>	<p>1 Q. Okay. And one of those 2 books is -- I asked you about your -- 3 A. Yes, yes. You're going over 4 old stuff. But you can ask me again 5 because I like Rothman. I don't mind. 6 Q. And one of -- one of those 7 books is Rothman on Modern Epidemiology? 8 A. That's correct. 9 Q. That's this book? 10 A. May I see it? Unfortunately 11 this one is too old to be on my shelf. 12 Q. What -- has he revised this? 13 A. Twice. 14 Q. Do you have the revised 15 version of this on your shelf? 16 A. Yes. 17 Q. Okay. So why did you refer 18 to an unpublished report from 2000 and 19 not any of the dozens and dozens of 20 articles that he's written since? 21 MR. HEGARTY: Objection. 22 THE WITNESS: Because I 23 specifically read it in the 24 context of this project, and I</p>

68 (Pages 266 to 269)

<p style="text-align: right;">Page 270</p> <p>1 said I have reviewed the</p> <p>2 following. I meant, and perhaps I</p> <p>3 failed to say, that it was</p> <p>4 specific to this question that was</p> <p>5 raised.</p> <p>6 BY MR. GOLOMB:</p> <p>7 Q. Yeah, but my question is a</p> <p>8 little bit different. Knowing that</p> <p>9 Dr. Rothman literally wrote the book on</p> <p>10 modern epidemiology, and having the book</p> <p>11 itself, and knowing that he has written</p> <p>12 versions of this book since 2000, and</p> <p>13 knowing that he's written dozens and</p> <p>14 dozens of articles since 2000</p> <p>15 specifically on epidemiology, why is it</p> <p>16 that, whether it was you or your</p> <p>17 librarian, didn't get those other</p> <p>18 articles from Dr. Rothman, read those</p> <p>19 books and so that you could refer to</p> <p>20 those in your report?</p> <p>21 MR. LOCKE: Objection. I</p> <p>22 think this is an</p> <p>23 apples-and-oranges type of</p> <p>24 comparison. You also have his</p>	<p style="text-align: right;">Page 272</p> <p>1 whom it had been determined that</p> <p>2 perineal use of talc-containing</p> <p>3 powder causes ovarian cancer.</p> <p>4 I was not asked to review</p> <p>5 the literature on weight of</p> <p>6 evidence.</p> <p>7 BY MR. GOLOMB:</p> <p>8 Q. Okay. And so, at least as</p> <p>9 it relates to your role in this</p> <p>10 litigation, the weight of the evidence or</p> <p>11 the hierarchy of the evidence was not a</p> <p>12 relevant question?</p> <p>13 MR. LOCKE: Objection.</p> <p>14 THE WITNESS: It was not a</p> <p>15 question that I was asked to opine</p> <p>16 upon.</p> <p>17 BY MR. GOLOMB:</p> <p>18 Q. Which made it irrelevant?</p> <p>19 MR. LOCKE: Objection.</p> <p>20 BY MR. GOLOMB:</p> <p>21 Q. Correct?</p> <p>22 A. I wouldn't have used that</p> <p>23 word. It's an interesting question under</p> <p>24 any circumstance, but it's not part of</p>
<p style="text-align: right;">Page 271</p> <p>1 attachment with materials</p> <p>2 considered. Rothman may or may</p> <p>3 not be on that. But -- well,</p> <p>4 that's my objection.</p> <p>5 THE WITNESS: I don't</p> <p>6 believe that Ken Rothman has</p> <p>7 written about the link between</p> <p>8 talcum powder and ovarian cancer</p> <p>9 in his textbooks.</p> <p>10 BY MR. GOLOMB:</p> <p>11 Q. Okay. Has he written about</p> <p>12 anything else that may be relevant to --</p> <p>13 to the litigation, like the</p> <p>14 considerations of the weight of the</p> <p>15 evidence, or considerations of hierarchy</p> <p>16 of the evidence?</p> <p>17 MR. LOCKE: Objection.</p> <p>18 MR. HEGARTY: Objection.</p> <p>19 THE WITNESS: I was asked --</p> <p>20 just to be clear, so that we don't</p> <p>21 have any doubts, I was asked to</p> <p>22 review the literature from a</p> <p>23 chronological perspective in order</p> <p>24 to evaluate whether, when, and by</p>	<p style="text-align: right;">Page 273</p> <p>1 what I was asked to do.</p> <p>2 Q. Okay. So you then,</p> <p>3 beginning on Page 4, you begin your</p> <p>4 discussion, under your subheading of</p> <p>5 discussion, correct?</p> <p>6 A. Yes. My section titled</p> <p>7 discussion begins on Page 4.</p> <p>8 Q. And it begins with prior to</p> <p>9 2000.</p> <p>10 A. That's where it begins.</p> <p>11 Q. All right. And are you</p> <p>12 aware that prior to 2000, that there were</p> <p>13 14 separate studies that showed a</p> <p>14 statistically significant increased risk</p> <p>15 for ovarian cancer with the perineal use</p> <p>16 of talc?</p> <p>17 MR. LOCKE: Objection.</p> <p>18 MR. HEGARTY: Objection.</p> <p>19 THE WITNESS: I indicate</p> <p>20 that, just to give a date -- the</p> <p>21 only place where I have a specific</p> <p>22 statement like that, was that the</p> <p>23 Langseth study in 2006 looked at</p> <p>24 20-case-control studies, all but</p>

Jonathan Borak, M.D., DABT

Page 274	Page 276
<p>1 one published by 2004. I did not 2 break it down structurally before 3 that. 4 BY MR. GOLOMB: 5 Q. Okay. And -- and 14 of 6 those studies took place before 2000? 7 MR. LOCKE: Objection. 8 THE WITNESS: I -- I accept 9 your statement. I don't know that 10 that's actually true. 11 BY MR. GOLOMB: 12 Q. Okay. Well, let -- let me 13 show you an exhibit we've prepared for -- 14 and we'll mark the exhibit, Exhibit 9. 15 (Document marked for 16 identification as Exhibit 17 Borak-9.) 18 BY MR. GOLOMB: 19 Q. You had mentioned earlier in 20 your testimony that there were something 21 like 25 separate case-control studies. 22 Do -- do you remember? 23 A. More than that, but yes. 24 Q. Okay. And if we look at</p>	<p>1 looked at the association between talc 2 and ovarian cancer. Do you recognize the 3 names on that list? 4 A. Yes. 5 MR. HEGARTY: Objection. 6 THE WITNESS: Sorry. 7 BY MR. GOLOMB: 8 Q. And there were 27 separate 9 studies that showed an increased risk 10 somewhere between 1.17 and 2.49. 11 Do you see that? 12 MR. HEGARTY: Objection. 13 MR. LOCKE: Objection. 14 THE WITNESS: I see the 15 numbers that you're referring to. 16 Yes. 17 BY MR. GOLOMB: 18 Q. Okay. And these are all 19 studies that you looked at as part of 20 your research into coming to your 21 conclusions, right? 22 A. Yes. 23 Q. And we -- and we know that 24 because if you look at the exhibit,</p>
Page 275	Page 277
<p>1 Exhibit 9 there, between 1982 and 2018, 2 there were actually 27. So there were -- 3 there were 27 separate studies that 4 showed a statistical significant 5 increased risk of ovarian cancer from the 6 perineal use of talc. 7 MR. LOCKE: Objection. 8 MR. HEGARTY: Objection. 9 THE WITNESS: Can you step 10 back and ask the question? I see 11 a group of studies. You were 12 talking about something -- repeat 13 your question. I'm unclear. 14 What I see here is a large 15 group of -- of studies, but they 16 are grouped by type. I thought 17 you were asking something about 18 type. 19 BY MR. GOLOMB: 20 Q. My -- my question -- you 21 have Exhibit 9 in front of you. 22 A. I do. 23 Q. All right. That is a chart 24 that includes 27 separate studies that</p>	<p>1 you'll see under the first -- the -- the 2 first column -- well, the third column, 3 do you see where it says reference list? 4 A. Yes. 5 Q. All right. And you see, as 6 an example, the X next to Penninkilampi? 7 A. If that's how it's 8 pronounced. 9 Q. Do you see that? 10 A. Yes. 11 Q. Okay. And the X -- the X 12 means that -- that that is a study that 13 you referred to -- 14 A. Yes. 15 Q. -- by name and by number, in 16 the body of your report. 17 A. Yeah. Shall I read what I 18 said about it? 19 Q. No. 20 A. Oh, okay. 21 Q. We're just trying -- I'm 22 trying to get the background. 23 A. No, no, no, I understand, I 24 understand.</p>

70 (Pages 274 to 277)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 278</p> <p>1 Q. Okay.</p> <p>2 A. I cited it in my report and</p> <p>3 I read it --</p> <p>4 Q. The second list --</p> <p>5 A. -- and the paper concluded</p> <p>6 that there was only a possibility of an</p> <p>7 association.</p> <p>8 Q. The -- and it also showed an</p> <p>9 increased risk of 1.31 with a confidence</p> <p>10 interval above 95, right?</p> <p>11 MR. LOCKE: Objection.</p> <p>12 THE WITNESS: And it</p> <p>13 concluded that -- that it was only</p> <p>14 possible. Yes.</p> <p>15 BY MR. GOLOMB:</p> <p>16 Q. And the -- the second column</p> <p>17 is Attachment 2, "Materials Considered."</p> <p>18 A. Yes.</p> <p>19 Q. All right. Let -- let's</p> <p>20 take a look at Exhibit 14, please.</p> <p>21 (Document marked for</p> <p>22 identification as Exhibit</p> <p>23 Borak-14.)</p> <p>24 THE WITNESS: Yes, I</p>	<p style="text-align: right;">Page 280</p> <p>1 considered?</p> <p>2 MR. LOCKE: Objection.</p> <p>3 THE WITNESS: Yes, that's</p> <p>4 pretty much the case.</p> <p>5 BY MR. GOLOMB:</p> <p>6 Q. All right. Was there -- was</p> <p>7 there ever a time when there was an</p> <p>8 article that was pulled, you looked at</p> <p>9 it, you looked at the first paragraph and</p> <p>10 said this isn't related to what I'm</p> <p>11 looking at?</p> <p>12 A. It's rarely the first</p> <p>13 paragraph. But yes, every month.</p> <p>14 Q. And -- and if we -- if we</p> <p>15 looked at the -- the Borak & Company</p> <p>16 invoices, a monthly invoice, and compared</p> <p>17 it to this list, would we find billing</p> <p>18 for each and every article that you</p> <p>19 reviewed or read?</p> <p>20 MR. LOCKE: Objection.</p> <p>21 THE WITNESS: You might.</p> <p>22 BY MR. GOLOMB:</p> <p>23 Q. So let's look at Exhibit 15,</p> <p>24 which is Attachment 3 to your report,</p>
<p style="text-align: right;">Page 279</p> <p>1 recognize -- yes, I recognize</p> <p>2 that.</p> <p>3 BY MR. GOLOMB:</p> <p>4 Q. What is -- what is materials</p> <p>5 considered?</p> <p>6 A. This reflects -- this is a</p> <p>7 list. This is a list of published</p> <p>8 articles and perhaps websites that I have</p> <p>9 listed in my database associated with the</p> <p>10 key words of talc or ovarian cancer. And</p> <p>11 that I reviewed in the context of this</p> <p>12 work that brings us all here together.</p> <p>13 Q. And this list includes 504</p> <p>14 separate articles, correct?</p> <p>15 A. Yes, it did when I was</p> <p>16 making this up as there -- there are</p> <p>17 additional ones since then, but not many.</p> <p>18 Q. And so if I -- if I</p> <p>19 understand your answer correctly, and</p> <p>20 your prior answers, anything that was</p> <p>21 captured in your -- the literature review</p> <p>22 that was pulled by your librarian, and</p> <p>23 then read by you, was included in this</p> <p>24 list, Attachment 2, called materials</p>	<p style="text-align: right;">Page 281</p> <p>1 "The Chronology of Opinions."</p> <p>2 (Document marked for</p> <p>3 identification as Exhibit</p> <p>4 Borak-15.)</p> <p>5 THE WITNESS: Thank you.</p> <p>6 BY MR. GOLOMB:</p> <p>7 Q. What is that?</p> <p>8 MR. LOCKE: Did you hear the</p> <p>9 question?</p> <p>10 THE WITNESS: I'm sorry.</p> <p>11 Could you --</p> <p>12 BY MR. GOLOMB:</p> <p>13 Q. What is that?</p> <p>14 A. Oh, I'm sorry, I didn't hear</p> <p>15 your question.</p> <p>16 This is a list of statements</p> <p>17 from the primary resources that I</p> <p>18 reviewed that I thought to be relevant to</p> <p>19 the question of who said what and --</p> <p>20 about whether there was an association</p> <p>21 between -- whether there was an</p> <p>22 association between perineal use and --</p> <p>23 of talc containing powder and whether it</p> <p>24 caused ovarian cancer. And this</p>

Jonathan Borak, M.D., DABT

Page 282	Page 284
<p>1 indicates those opinions which I thought 2 were germane to the question of whether 3 it was said, when it was said and by 4 whom. 5 Q. And you -- you just called 6 them primary references. What do you 7 mean by primary references? 8 MR. HEGARTY: Objection. 9 THE WITNESS: I -- I meant 10 in terms of those which I compiled 11 into a list of references. There 12 were many, there were 504 papers. 13 Many of them said nothing about 14 talc. Many of them offered 15 nothing more than a conjecture 16 about talc. 17 I was looking for those 18 statements that appeared to be 19 relatively encompassing and 20 specific. 21 And I listed them 22 chronologically, because that was 23 what I was asked to do. I wasn't 24 asked to make a list. But I was</p>	<p>1 and, in fact, trial testimony, correct? 2 MR. LOCKE: Objection. 3 THE WITNESS: I think so, I 4 don't know if there was trial 5 testimony. But there may have 6 been. 7 BY MR. GOLOMB: 8 Q. I'm sorry? 9 A. I don't know that there was 10 trial testimony. But there may have 11 been. I'm not disagreeing with you. 12 Q. And so just as an example, 13 on Page 5 of the exhibit -- 14 MR. LOCKE: Which exhibit? 15 15? 16 MR. GOLOMB: Exhibit 15. 17 BY MR. GOLOMB: 18 Q. You have a quote there from 19 Dr. Ness. 20 Do you see that? 21 A. Yes. At the top of the 22 page? 23 Q. Right. 24 A. Yes.</p>
Page 283	Page 285
<p>1 asked to approach this literature 2 in a chronological way. And to my 3 thinking, this was a good way of 4 presenting it. 5 BY MR. GOLOMB: 6 Q. Okay. But when -- when you 7 say primary -- primary references, what 8 does that mean? 9 MR. LOCKE: I think he said 10 primary resources. 11 MR. HEGARTY: Objection. 12 THE WITNESS: I -- 13 BY MR. GOLOMB: 14 Q. Okay. Primary resources, 15 what does that mean? 16 A. These were published papers, 17 in some cases depositions, that I thought 18 were salient and relevant to the 19 question. 20 Q. Okay. Well, you've -- 21 you -- at least according to the earlier 22 attachment that we looked at, you -- you 23 looked at dozens and dozens of -- of 24 expert reports and deposition testimony</p>	<p>1 Q. And there it says, "Hill's 2 tenants suggest that talc use causes 3 ovarian cancer." Right? 4 A. That's what it says. 5 Q. And then it says 21, right? 6 A. Yes. 7 Q. And 21, if we reference back 8 and look at Exhibit 7, to Reference 9 Number 21 in your report? 10 MR. LOCKE: This is seven. 11 THE WITNESS: Yeah, yeah, 12 yeah, but I don't have the -- 13 MR. LOCKE: It's actually -- 14 it's Exhibit 8, list of 15 references. 16 MR. GOLOMB: The report is 17 Exhibit 7. 18 MR. LOCKE: Right. But 19 Exhibit 8 is the references. 20 THE WITNESS: Yeah, yeah, 21 yeah. The answer is no. On this 22 list it's Number 23. 23 BY MR. GOLOMB: 24 Q. When you say "this list" --</p>

72 (Pages 282 to 285)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 286</p> <p>1 A. I think that there was --</p> <p>2 Q. -- what are you referring</p> <p>3 to?</p> <p>4 A. -- probably would have been</p> <p>5 another list with this, but perhaps not.</p> <p>6 That referred specifically</p> <p>7 to --</p> <p>8 Q. When you say "that," what</p> <p>9 are you referring to?</p> <p>10 A. The Ness quote that you</p> <p>11 pointed to --</p> <p>12 Q. Yes.</p> <p>13 A. -- from 2015. That comes</p> <p>14 from -- no, it is not on this list. That</p> <p>15 was the list that was Exhibit 8. And I</p> <p>16 would have expected that there was</p> <p>17 another list which went with this other</p> <p>18 Attachment 3.</p> <p>19 Q. Well, let's look at</p> <p>20 Exhibit 16.</p> <p>21 (Document marked for</p> <p>22 identification as Exhibit</p> <p>23 Borak-16.)</p> <p>24 BY MR. GOLOMB:</p>	<p style="text-align: right;">Page 288</p> <p>1 Q. Okay. So as an example,</p> <p>2 on -- let's go to Page 2 of Exhibit 15</p> <p>3 under Dr. Cramer.</p> <p>4 Do you see that?</p> <p>5 A. Yes.</p> <p>6 Q. Do you know how -- so there</p> <p>7 you quote, and it says, "The associations</p> <p>8 still viewed with skepticism based upon</p> <p>9 weak odds ratio, poor dose-response</p> <p>10 relationship, and an incomplete</p> <p>11 understanding of the biological mechanism</p> <p>12 by which talc might lead to ovarian</p> <p>13 cancer."</p> <p>14 A. Yes.</p> <p>15 Q. All right. And what is the</p> <p>16 import of that statement?</p> <p>17 MR. LOCKE: Objection.</p> <p>18 THE WITNESS: I think</p> <p>19 it's --</p> <p>20 BY MR. GOLOMB:</p> <p>21 Q. Asked another way, in an</p> <p>22 11-page study, why is that the line that</p> <p>23 you pulled out?</p> <p>24 A. Because at the time</p>
<p style="text-align: right;">Page 287</p> <p>1 Q. Exhibit 16 is entitled --</p> <p>2 MR. LOCKE: You get the one</p> <p>3 that's marked as an exhibit.</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. Exhibit 16 is entitled</p> <p>6 "Chronology of Opinions Reference List"?</p> <p>7 A. Yes. And Number 21, which</p> <p>8 appeared in the chronology of opinions,</p> <p>9 corresponds to Number 21 on the</p> <p>10 appropriate reference list, which goes</p> <p>11 with that chronology of opinions.</p> <p>12 Q. Okay. And what is -- what</p> <p>13 is the purpose combined of Attachment 3,</p> <p>14 chronology of opinions, which is</p> <p>15 Exhibit 15, and Exhibit 16, Chronology of</p> <p>16 Opinions Reference List?</p> <p>17 MR. LOCKE: Objection.</p> <p>18 THE WITNESS: I have listed</p> <p>19 a series of quotes and statements</p> <p>20 in that which is Exhibit 15.</p> <p>21 And Exhibit 16 is a list of</p> <p>22 the references that pertain to the</p> <p>23 statements in Exhibit 15.</p> <p>24 BY MR. GOLOMB:</p>	<p style="text-align: right;">Page 289</p> <p>1 Dr. Cramer was an expert in this</p> <p>2 litigation.</p> <p>3 Q. Because what?</p> <p>4 A. He was an expert at that</p> <p>5 time in this litigation.</p> <p>6 Q. Dr. Cramer?</p> <p>7 A. Not in 1999. And it seemed</p> <p>8 a very succinct statement of the fact</p> <p>9 that this was unproven.</p> <p>10 Q. All right. Do you recall in</p> <p>11 the 1999 study from Dr. Cramer that he</p> <p>12 also had a footnote in his -- in the</p> <p>13 article that referred to the fact that</p> <p>14 there are approximately 22,000 women who</p> <p>15 are diagnosed per year from ovarian</p> <p>16 cancer? Do you recall that?</p> <p>17 MR. HEGARTY: Objection.</p> <p>18 MR. LOCKE: Objection.</p> <p>19 THE WITNESS: I don't. But</p> <p>20 if you pull out the paper I'd be</p> <p>21 happy to look at it.</p> <p>22 BY MR. GOLOMB:</p> <p>23 Q. Do you recall that he also</p> <p>24 said that approximately 14,000 women die</p>

73 (Pages 286 to 289)

<p style="text-align: right;">Page 290</p> <p>1 every year from ovarian cancer?</p> <p>2 MR. LOCKE: Objection.</p> <p>3 MR. HEGARTY: Objection.</p> <p>4 THE WITNESS: I have no</p> <p>5 independent recollection of that.</p> <p>6 BY MR. GOLOMB:</p> <p>7 Q. Do you have -- I mean, those</p> <p>8 are very common statistics that you can</p> <p>9 find in dozens and dozens of articles and</p> <p>10 studies that you have identified as</p> <p>11 references in your report. It doesn't</p> <p>12 sound familiar?</p> <p>13 MR. HEGARTY: Objection.</p> <p>14 MR. LOCKE: Objection.</p> <p>15 That's a different question.</p> <p>16 MR. GOLOMB: That's the</p> <p>17 question.</p> <p>18 MR. LOCKE: You're asking</p> <p>19 about a footnote, or are you</p> <p>20 asking about are those numbers</p> <p>21 familiar to him?</p> <p>22 BY MR. GOLOMB:</p> <p>23 Q. Are those familiar --</p> <p>24 numbers familiar to you?</p>	<p style="text-align: right;">Page 292</p> <p>1 50 that are identified in the first</p> <p>2 reference list and in the body of your</p> <p>3 report?</p> <p>4 A. Yes, that's correct. There</p> <p>5 are different reference lists for</p> <p>6 different parts. Funny, I thought that</p> <p>7 made it easier. Teach me.</p> <p>8 Q. And if we look at</p> <p>9 Exhibit 17, that's your Attachment 4 of</p> <p>10 the web pages?</p> <p>11 A. We don't have it yet.</p> <p>12 MR. LOCKE: It might be over</p> <p>13 here. Let me check.</p> <p>14 THE WITNESS: We don't have</p> <p>15 it here. It's coming.</p> <p>16 (Document marked for</p> <p>17 identification as Exhibit</p> <p>18 Borak-17.)</p> <p>19 BY MR. GOLOMB:</p> <p>20 Q. And so if I understand this</p> <p>21 four-page document, these are websites</p> <p>22 that you looked at as part of your</p> <p>23 background research?</p> <p>24 A. Yes.</p>
<p style="text-align: right;">Page 291</p> <p>1 A. They sound like the right</p> <p>2 dimension. But I don't remember the</p> <p>3 specific numbers.</p> <p>4 Q. Okay. And are you aware</p> <p>5 that in the 1999 study, where you pull</p> <p>6 out those two lines, that Dr. Cramer's</p> <p>7 opinion was 10 percent or 1,400 women per</p> <p>8 year who die from ovarian cancer, die</p> <p>9 from perineal use of talc?</p> <p>10 MR. LOCKE: Objection.</p> <p>11 MR. HEGARTY: Objection.</p> <p>12 THE WITNESS: I don't think</p> <p>13 I remember that statement.</p> <p>14 BY MR. GOLOMB:</p> <p>15 Q. Okay. Just so I'm clear,</p> <p>16 the -- when -- I guess, then, Exhibit 15,</p> <p>17 the chronology of opinions, and</p> <p>18 Exhibit 16, the chronology of opinions</p> <p>19 reference list, should be read together?</p> <p>20 A. Yes, correct.</p> <p>21 Q. And so the numbers on the</p> <p>22 chronology of opinion, 1 through 37, have</p> <p>23 nothing to do with -- bless you -- have</p> <p>24 nothing to do with the numbers 1 through</p>	<p style="text-align: right;">Page 293</p> <p>1 Q. And what you -- just taking,</p> <p>2 let's look at the Cancer Council of</p> <p>3 Australia as an example. It says,</p> <p>4 "Inferred risks." And then underneath</p> <p>5 that it says, "Perineal use of talc-based</p> <p>6 body powder."</p> <p>7 Do you see that?</p> <p>8 A. Yes.</p> <p>9 Q. And so these are just quotes</p> <p>10 from the websites that you put on this</p> <p>11 list called web pages?</p> <p>12 A. These were websites that I</p> <p>13 referred to in my report. And I did this</p> <p>14 because in my report, for brevity, I</p> <p>15 didn't include it all. I didn't want to</p> <p>16 be accused of cherry-picking.</p> <p>17 Q. What do you mean by</p> <p>18 cherry-picking?</p> <p>19 A. There were large lists, and</p> <p>20 I picked out in the body of my report one</p> <p>21 or two salient terms from paragraphs or</p> <p>22 lists. And just to be sure that nobody</p> <p>23 thought that I was screwing around with</p> <p>24 the data, I took the entire block from</p>

<p style="text-align: right;">Page 294</p> <p>1 that website and I included it here just 2 to show transparently where the things 3 came from. 4 Q. Well, you -- you said, using 5 your -- your words, I'm quoting you, 6 screwing around with the data, in the -- 7 I mean, you don't refer to the underlying 8 data at all, do you? 9 MR. LOCKE: Objection. 10 MR. HEGARTY: Objection. 11 THE WITNESS: In this case, 12 the underlying data were that 13 which was found on the websites or 14 in the articles. 15 BY MR. GOLOMB: 16 Q. Right. I mean the 17 underlying data of the dozens of 18 case-control and cohort studies. 19 MR. LOCKE: Objection. 20 THE WITNESS: I didn't touch 21 those data. 22 BY MR. GOLOMB: 23 Q. So, and I think this has 24 been pretty established -- well</p>	<p style="text-align: right;">Page 296</p> <p>1 fifth most important in women. And I 2 think it's a very serious topic. I 3 certainly didn't mean in any way to 4 suggest that I don't think this is of 5 major importance to people. 6 Q. Going back to your report. 7 So in your discussion, and if you look 8 at -- as I ask you this question, I would 9 like you to look at Exhibit 7, which is 10 your report, and Exhibit 9, which is the 11 chart that we prepared. 12 Do you see that? 13 A. Yes, I do. 14 Q. Okay. And now that we've 15 gone over Attachment 2, the materials 16 considered, and Attachment 3, the 17 chronology of opinions, it puts in 18 greater context this chart. Okay? 19 MR. HEGARTY: Objection. 20 MR. LOCKE: Objection. 21 BY MR. GOLOMB: 22 Q. Would you agree? 23 A. I understood the chart when 24 you first showed it to me.</p>
<p style="text-align: right;">Page 295</p> <p>1 established. But if we look at, as an 2 example, Page 2, under the National 3 Cancer Institute. This is something that 4 you accessed three days before you wrote 5 your report, correct? 6 A. Yes, that's correct. 7 Q. But other than the -- the 8 12/21/18 National Cancer Institute dated 9 website, you didn't look at any of the 10 prior NCI websites? 11 A. I don't specifically recall. 12 Q. By the way, if you look at 13 the last one on Page 3, 14 yourdiseaserisk.com? 15 A. Yes. 16 Q. You see there it refers to 17 the stat that I had just gave you about 18 over 22,000 women a year? 19 A. Oh, listen, I -- I don't 20 doubt for a minute that ovarian cancer is 21 an important disease for women even 22 though it is a relatively less common 23 cancer. It's what, the ninth most 24 important cancer in the United States,</p>	<p style="text-align: right;">Page 297</p> <p>1 Q. Okay. Now, we all -- we all 2 do. 3 A. Wonderful. 4 Q. Excuse me? 5 A. I said wonderful. 6 Q. Now, the reference list, 1 7 through -- you had 1 through 50 to the 8 body of your report includes nine of the 9 27 studies that show a statistically 10 significant increased risk of ovarian 11 cancer from the perineal use of talc -- 12 A. Correct. 13 MR. LOCKE: Objection. 14 MR. HEGARTY: Objection. 15 BY MR. GOLOMB: 16 Q. And how is it that you 17 decided as an example to include 18 Penninkilampi but not include Huncharek 19 or Ness? 20 MR. HEGARTY: Objection. 21 THE WITNESS: I believe that 22 Ness is cited in my report. I 23 think Huncharek and Muscat did not 24 strike me as being significant</p>

Page 298	Page 300
<p>1 papers, although I've seen them 2 cited a lot. 3 And Penin -- whoever that is 4 pronounced -- Penninkilampi is a 5 fairly recent paper and so I 6 included it. 7 BY MR. GOLOMB: 8 Q. Well, you included Harlow 9 1992, Gross 1995? 10 A. I think those were more 11 important markers in the chronology. 12 Q. And how did you determine 13 what was more important, that one thing 14 was more important than something else? 15 A. Some of it had to do with 16 the comments of some of the experts in 17 their testimony. Some of it had to do 18 with some of their publications. Some of 19 it had to do with what lengths in 20 particular opined with regards to the 21 important papers when IARC looked at it. 22 And so that certainly -- by the time 23 the -- the Langseth and the IARC paper 24 came out, there was a hierarchy of these</p>	<p>1 ago, you mentioned the fact that when I 2 asked you about Ness 2000 and why as an 3 example that was not cited in the -- in 4 the -- the body of your report, you said 5 that you thought it was. Can you -- 6 MR. LOCKE: Objection. 7 BY MR. GOLOMB: 8 Q. -- point that out for me? 9 MR. HEGARTY: Objection. 10 THE WITNESS: I -- I may not 11 have. I'm thinking of the Ness 12 1999 paper on inflammation as 13 being an interesting benchmark, 14 but maybe I didn't cite it. 15 It is -- well, I've got one 16 Ness -- but that's not the same 17 one. This is the one -- 18 BY MR. GOLOMB: 19 Q. You cite Ness in 2015. 20 A. I thought I had cited their 21 1999 paper. I'm surprised that I didn't. 22 Q. Okay. And you -- you cite 23 the 2006 IARC in the body of your report 24 there, Paragraph 19, correct?</p>
Page 299	Page 301
<p>1 papers. I mean, that was pretty clear. 2 Q. But you've already indicated 3 that you didn't -- you didn't -- weren't 4 asked to opine and didn't consider the 5 hierarchy of the papers? 6 MR. LOCKE: Objection. 7 MR. HEGARTY: Objection. 8 THE WITNESS: My 9 understanding before is you were 10 asking me about the hierarchy of 11 epidemiological formats. 12 BY MR. GOLOMB: 13 Q. Okay. 14 A. And what I'm saying here is 15 that some of these papers were 16 disregarded by Langseth for example, for 17 various and specific reasons. And I 18 accepted that as I read, I was aware of 19 the papers, and I read them all. But by 20 2006 those papers had been adjudicated, 21 so to speak, by the IARC group. And so I 22 was looking for highlights in the 23 chronology prior to that. 24 Q. All right. Just a moment</p>	<p>1 A. Yes. That's the Langseth 2 report. 3 Q. And you're -- you're aware 4 that Dr. Siemiatycki was the chair of 5 that -- of that IARC panel? 6 A. I think you'll find that I 7 stated that in my report. 8 Q. Have -- have you ever served 9 as a panel member for IARC? 10 MR. LOCKE: Objection. 11 THE WITNESS: I -- I think 12 I've answered that earlier and 13 said no. 14 BY MR. GOLOMB: 15 Q. And the -- the Langseth 16 paper that you referred to, that was the 17 2008 meta-analysis that was -- included 18 Dr. Siemiatycki? 19 A. Yes, that's correct. 20 Q. In the 1999 Cramer study, 21 you -- your quote that you picked out for 22 quotation in the exhibit -- 23 A. Which exhibit, sir? 24 Q. Exhibit 15.</p>

Jonathan Borak, M.D., DABT

Page 302	Page 304
<p>1 You begin with the</p> <p>2 associations still viewed with</p> <p>3 skepticism.</p> <p>4 Do you see that?</p> <p>5 A. This is Cramer 1999. Yes.</p> <p>6 Q. Okay. And why did you</p> <p>7 choose that line to include in your</p> <p>8 chronology of opinions?</p> <p>9 A. I would have to look at his</p> <p>10 paper to know what I cropped out before</p> <p>11 that. But let me make it clear that my</p> <p>12 objective in doing this was to find</p> <p>13 evidence, not to find negation.</p> <p>14 Q. I'm sorry?</p> <p>15 A. I say my purpose in this</p> <p>16 project was to find evidence of a</p> <p>17 positive relationship between ovarian</p> <p>18 cancer and talc. I was not looking to</p> <p>19 cite or refer to people who were just</p> <p>20 negative.</p> <p>21 And I picked this because it</p> <p>22 reflected, as I read it now, what looks</p> <p>23 to me like Dr. Cramer's uncertainty and</p> <p>24 doubt about the association, at least his</p>	<p>1 not a statement regarding to</p> <p>2 whether it causes it. That was</p> <p>3 simply -- he was giving his own</p> <p>4 view and opinion with regard to a</p> <p>5 public health issue.</p> <p>6 BY MR. GOLOMB:</p> <p>7 Q. He was -- that's in his</p> <p>8 summary?</p> <p>9 A. What you just read to me --</p> <p>10 Q. Right.</p> <p>11 A. -- was an opinion.</p> <p>12 Q. That was an opinion, much</p> <p>13 the way your summary in your report is</p> <p>14 your opinion?</p> <p>15 MR. HEGARTY: Objection.</p> <p>16 MR. LOCKE: Objection.</p> <p>17 THE WITNESS: My summary in</p> <p>18 my report is a compilation of what</p> <p>19 other people have said, and I've</p> <p>20 said based upon this, I find no</p> <p>21 evidence of scientific proof. And</p> <p>22 I've been looking for experts to</p> <p>23 opine on scientific proof. And I</p> <p>24 have not found it. That was my</p>
Page 303	Page 305
<p>1 concerns that the association was not</p> <p>2 solid.</p> <p>3 Q. Okay.</p> <p>4 A. But if you show me the</p> <p>5 paper, I will be happy to see what</p> <p>6 preceded this quote. And then it will</p> <p>7 help me to understand what I was thinking</p> <p>8 when I did this some years ago.</p> <p>9 Q. Well, on the final paragraph</p> <p>10 of that report, of that -- of that</p> <p>11 article, it says, "In summary, we have</p> <p>12 demonstrated a consistent association</p> <p>13 between talc and ovarian cancer. It</p> <p>14 appears unlikely to be explained by</p> <p>15 recall or confounding. Appropriate</p> <p>16 warnings should be provided to women</p> <p>17 about the potential risk of regular use</p> <p>18 of talc in the genital area."</p> <p>19 MR. LOCKE: Objection.</p> <p>20 BY MR. GOLOMB:</p> <p>21 Q. Why didn't you include that</p> <p>22 in your chronology of opinions?</p> <p>23 MR. HEGARTY: Objection.</p> <p>24 THE WITNESS: Because that's</p>	<p>1 opinion.</p> <p>2 And when Mr. Green at an</p> <p>3 earlier time asked me whether that</p> <p>4 could be refuted, I said yes, you</p> <p>5 just have to find the report that</p> <p>6 refutes it. And I have not found</p> <p>7 that.</p> <p>8 BY MR. GOLOMB:</p> <p>9 Q. And you cite in the body of</p> <p>10 your report the Langseth -- the Langseth,</p> <p>11 which we've talked about a lot, correct?</p> <p>12 Number 13.</p> <p>13 A. Langseth, yes, right.</p> <p>14 Q. And from the totality of the</p> <p>15 Langseth report, the single quotation</p> <p>16 that you cited in your report is, "The</p> <p>17 current body of experimental and</p> <p>18 epidemiological evidence is insufficient</p> <p>19 to establish a causal association between</p> <p>20 perineal use of talc and ovarian cancer,"</p> <p>21 correct?</p> <p>22 A. Yes. I said that and they</p> <p>23 said that.</p> <p>24 MR. LOCKE: Are you</p>

77 (Pages 302 to 305)

Jonathan Borak, M.D., DABT

Page 306	Page 308
<p>1 referring, when you're quoting, to</p> <p>2 Exhibit 15 or Exhibit 7?</p> <p>3 MR. GOLOMB: Exhibit 7. No.</p> <p>4 I'm sorry, Exhibit 15.</p> <p>5 THE WITNESS: Yes.</p> <p>6 MR. GOLOMB: In his</p> <p>7 chronology of opinions.</p> <p>8 THE WITNESS: Yes, I quoted</p> <p>9 that, and that's what they said.</p> <p>10 BY MR. GOLOMB:</p> <p>11 Q. And what you didn't quote</p> <p>12 was, "On balance, the epidemiological</p> <p>13 evidence suggests that the use of</p> <p>14 cosmetic talc in the perineal area may be</p> <p>15 associated with ovarian cancer risk. The</p> <p>16 mechanism of carcinogenicity may be</p> <p>17 related to inflammation."</p> <p>18 You didn't quote that,</p> <p>19 correct?</p> <p>20 MR. LOCKE: Objection.</p> <p>21 MR. HEGARTY: Objection.</p> <p>22 THE WITNESS: The conclusion</p> <p>23 of the study was that it was</p> <p>24 possible but not proven or known.</p>	<p>1 You started with IARC.</p> <p>2 We're now in a different area.</p> <p>3 MR. GOLOMB: Is that an</p> <p>4 objection?</p> <p>5 MR. LOCKE: Yes.</p> <p>6 BY MR. GOLOMB:</p> <p>7 Q. Okay. Can you answer my</p> <p>8 question?</p> <p>9 A. Your question is that</p> <p>10 epidemiologists almost never can prove</p> <p>11 causation. They demonstrate association.</p> <p>12 Q. That wasn't my question</p> <p>13 though. So --</p> <p>14 A. Of course it was. You asked</p> <p>15 me whether epidemiological evidence was</p> <p>16 sufficient to conclude causation. That's</p> <p>17 not how you said it.</p> <p>18 Q. Okay. My question was</p> <p>19 simply, is it your opinion as an</p> <p>20 epidemiologist that in order to prove</p> <p>21 causation, it must be proved beyond a</p> <p>22 reasonable doubt?</p> <p>23 MR. LOCKE: Objection.</p> <p>24 MR. HEGARTY: Objection.</p>
Page 307	Page 309
<p>1 And that led to an IARC II-B</p> <p>2 categorization. And that does not</p> <p>3 say that it was proven.</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. And by proven, you mean</p> <p>6 what?</p> <p>7 A. In the case of IARC what</p> <p>8 does it mean?</p> <p>9 Q. No. You used -- you used</p> <p>10 the word "proven." I'm asking you, what</p> <p>11 does proven mean?</p> <p>12 MR. LOCKE: Objection.</p> <p>13 THE WITNESS: I think beyond</p> <p>14 reasonable doubt.</p> <p>15 BY MR. GOLOMB:</p> <p>16 Q. Okay. So in order -- in</p> <p>17 order for -- from an epidemiological</p> <p>18 standpoint, in order for an</p> <p>19 epidemiologist to conclude that</p> <p>20 something -- some product causes a</p> <p>21 disease, it has to be beyond a reasonable</p> <p>22 doubt?</p> <p>23 MR. HEGARTY: Objection.</p> <p>24 MR. LOCKE: Objection.</p>	<p>1 THE WITNESS: I think there</p> <p>2 has to be a substantial amount of</p> <p>3 proof, yes.</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. Okay. Substantial, do you</p> <p>6 equate substantial amount of proof with</p> <p>7 proof beyond a reasonable doubt?</p> <p>8 MR. HEGARTY: Objection.</p> <p>9 MR. LOCKE: Objection.</p> <p>10 THE WITNESS: It's</p> <p>11 semantical. I'm not trying to</p> <p>12 define a legal or scientific</p> <p>13 criterion. It depends upon the</p> <p>14 totality of the information that's</p> <p>15 available. And we know that there</p> <p>16 are associations which are not</p> <p>17 causal. And we know that there</p> <p>18 are some causation is that have</p> <p>19 less of different kinds of</p> <p>20 evidence. I think you have to</p> <p>21 look at all of the evidence.</p> <p>22 BY MR. GOLOMB:</p> <p>23 Q. Name -- name a -- an</p> <p>24 association that you can comfortably</p>

78 (Pages 306 to 309)

Jonathan Borak, M.D., DABT

Page 310	Page 312
<p>1 conclude is also causation beyond a 2 reasonable doubt? 3 MR. LOCKE: Objection. 4 THE WITNESS: I think the 5 association of scrotal cancer in 6 chimney sweeps in England and the 7 causal relationship was pretty 8 definite. And that was without 9 experimentation. 10 BY MR. GOLOMB: 11 Q. Right. But not every 12 chimney sweep gets scrotal cancer? 13 A. Isn't that amazing? 14 Q. Right. Well, it's also 15 equally amazing that not every cigarette 16 smoker gets lung cancer. 17 MR. LOCKE: Objection. 18 MR. HEGARTY: Objection. 19 THE WITNESS: It is true 20 that not every cigarette smoker 21 gets lung cancer. 22 BY MR. GOLOMB: 23 Q. But do you believe that 24 smoking cigarettes has been proved beyond</p>	<p>1 exposures to powders has the capacity to 2 cause ovarian cancer is the observation 3 of a 30 to 60 percent increase in risk 4 across most case-control studies. In 5 this regard, our findings are similar to 6 prior studies." 7 But you didn't include that 8 in your report, did you? 9 MR. LOCKE: Objection. 10 THE WITNESS: The question, 11 sir, was whether, when and by whom 12 it was -- let me read it so 13 there's no question about my 14 intent -- whether when and by whom 15 it had been determined that 16 perineal use of talc-containing 17 powder caused ovarian cancer. 18 And the quote that I had in 19 my report was -- if I can find the 20 paragraph that you just pointed me 21 to, "No stronger adjective than 22 'possible.'" 23 And that's exactly the same 24 thing that IARC concluded and that</p>
Page 311	Page 313
<p>1 a reasonable doubt to cause lung cancer? 2 MR. LOCKE: Objection. 3 THE WITNESS: Depending upon 4 the circumstances of the smoking. 5 BY MR. GOLOMB: 6 Q. Now, in your report, going 7 back to Exhibit 7. 8 MR. LOCKE: Do you need to 9 take a break? 10 THE WITNESS: No. I'm just 11 looking at time fly. 12 BY MR. GOLOMB: 13 Q. Go to Page 6 under Paragraph 14 22. 15 A. Mm-hmm. Yes. 16 Q. About the Rosenblatt study, 17 you say, "A 2011 case-control study 18 concluded that no stronger adjective than 19 'possible' appears warranted at this 20 time." 21 Do you see that? 22 A. Yes. 23 Q. Now, it also says, "In 24 support of a inference that genital</p>	<p>1 was what I was addressing. 2 BY MR. GOLOMB: 3 Q. Is that what Rosenblatt 4 said, what I just read to you, possible? 5 A. I quoted this from 6 Rosenblatt. 7 Q. Yeah. The quote that I just 8 read is something that you did not -- not 9 quote in your report, correct? 10 MR. LOCKE: Objection. 11 THE WITNESS: It is not 12 quoted. 13 BY MR. GOLOMB: 14 Q. Okay. And that was the 15 statement that is essentially, 16 paraphrasing, talked about the consistent 17 findings of the 30 to 60 percent 18 increased risk? 19 MR. LOCKE: Objection. 20 THE WITNESS: Yes. She may 21 very well have said that. But 22 isn't it remarkable that despite 23 that, she still concluded no 24 stronger adjective than "possible"</p>

79 (Pages 310 to 313)

Jonathan Borak, M.D., DABT

Page 314	Page 316
<p>1 appears warranted.</p> <p>2 BY MR. GOLOMB:</p> <p>3 Q. And you don't know what's</p> <p>4 before or after that statement, correct?</p> <p>5 MR. LOCKE: Objection.</p> <p>6 THE WITNESS: Not without</p> <p>7 you handing me the paper to read.</p> <p>8 BY MR. GOLOMB:</p> <p>9 Q. So earlier today I was</p> <p>10 asking you about the beryllium cases?</p> <p>11 A. The what.</p> <p>12 Q. The beryllium?</p> <p>13 A. Beryllium, yes.</p> <p>14 Q. And, in fact, the case that</p> <p>15 you were an expert in was Wanda</p> <p>16 Washington versus Lockheed Martin. Do</p> <p>17 you recall that?</p> <p>18 A. Not by name. Tell me some</p> <p>19 context.</p> <p>20 Q. Well, let me show you what</p> <p>21 we've marked as Exhibit 21.</p> <p>22 (Document marked for</p> <p>23 identification as Exhibit</p> <p>24 Borak-21.)</p>	<p>1 confusing me. I'm sorry.</p> <p>2 BY MR. GOLOMB:</p> <p>3 Q. Okay. I said before we get</p> <p>4 to beryllium I want to button something</p> <p>5 down --</p> <p>6 A. I misheard you. I</p> <p>7 apologize.</p> <p>8 Q. -- on Exhibit 7 and</p> <p>9 Exhibit 8.</p> <p>10 A. I was changing glasses so I</p> <p>11 could read.</p> <p>12 Q. For ease of reference, why</p> <p>13 don't you put 7 and 8 in front of you.</p> <p>14 A. I have them.</p> <p>15 Q. Okay.</p> <p>16 A. No, I have 7 and 8 in front</p> <p>17 of me.</p> <p>18 Q. Okay. And so, in the body</p> <p>19 of your report, Exhibit 7, and on your</p> <p>20 reference list, you cite to nine</p> <p>21 statistically significant studies that</p> <p>22 showed an increased risk of ovarian</p> <p>23 cancer from the perineal use of talc,</p> <p>24 correct?</p>
Page 315	Page 317
<p>1 BY MR. GOLOMB:</p> <p>2 Q. Okay. Does that look</p> <p>3 familiar?</p> <p>4 A. I guess it does. I don't</p> <p>5 remember it. But it looks like it's</p> <p>6 mine.</p> <p>7 Q. Is that your signature on</p> <p>8 Page 45?</p> <p>9 A. Yes. I think so.</p> <p>10 Q. Okay. Let me -- let me just</p> <p>11 button down something on your report.</p> <p>12 And we'll -- we'll come back to this on</p> <p>13 Exhibit 7, and 8, the reference list.</p> <p>14 I just want to make sure</p> <p>15 that I'm clear that although you did cite</p> <p>16 to nine studies that showed a</p> <p>17 statistically significant increased risk,</p> <p>18 somewhere between 1.22 and 1.92 --</p> <p>19 A. I'm sorry, are we talking</p> <p>20 about beryllium?</p> <p>21 MR. LOCKE: No. Just put</p> <p>22 that one aside. We're talking</p> <p>23 about your report.</p> <p>24 THE WITNESS: You are</p>	<p>1 MR. LOCKE: Objection.</p> <p>2 THE WITNESS: It's possible.</p> <p>3 Would you show me in the report</p> <p>4 where I did that, or -- I -- I</p> <p>5 want to be sure that we're clear.</p> <p>6 BY MR. GOLOMB:</p> <p>7 Q. You want me to go through</p> <p>8 your report --</p> <p>9 A. You just --</p> <p>10 Q. -- to point out which</p> <p>11 studies?</p> <p>12 A. You just told me I quoted</p> <p>13 nine, and I'm just looking to see where</p> <p>14 that is.</p> <p>15 Q. Okay. I'll do that.</p> <p>16 A. Thank you.</p> <p>17 Q. Penninkilampi, one.</p> <p>18 A. That's not an original</p> <p>19 study. That's a meta-analysis.</p> <p>20 Q. It's a -- it's a study that</p> <p>21 you cite in your report.</p> <p>22 A. Yeah, yeah, yeah, yeah,</p> <p>23 yeah. But it's not an original study.</p> <p>24 It's a meta-analysis.</p>

80 (Pages 314 to 317)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 318</p> <p>1 Q. I -- I didn't -- I --</p> <p>2 MR. GOLOMB: Can we read</p> <p>3 back my question?</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. I don't think I said</p> <p>6 anything about an original study or --</p> <p>7 or -- but let's go back to the question.</p> <p>8 MR. LOCKE: You said -- you</p> <p>9 said you cite to nine</p> <p>10 statistically significant studies.</p> <p>11 THE WITNESS: Fine. It was</p> <p>12 a statistically significant</p> <p>13 meta-analysis.</p> <p>14 BY MR. GOLOMB:</p> <p>15 Q. Okay. And a meta-analysis</p> <p>16 is, in your opinion, that's not a study?</p> <p>17 MR. LOCKE: Objection.</p> <p>18 THE WITNESS: It is a</p> <p>19 different kind of a study. I</p> <p>20 thought you were talking about</p> <p>21 things with original data as</p> <p>22 opposed to reanalysis of data.</p> <p>23 BY MR. GOLOMB:</p> <p>24 Q. I didn't -- I didn't qualify</p>	<p style="text-align: right;">Page 320</p> <p>1 others. So in a sense it's double</p> <p>2 counting when you do it that way.</p> <p>3 BY MR. GOLOMB:</p> <p>4 Q. Okay. Well, let's talk</p> <p>5 about the studies you didn't cite.</p> <p>6 You didn't cite to --</p> <p>7 there's a second Harlow study in '92.</p> <p>8 There is a Cramer '95.</p> <p>9 MR. LOCKE: Objection. Your</p> <p>10 own Exhibit 9 shows that he did</p> <p>11 include it.</p> <p>12 MR. GOLOMB: That he did</p> <p>13 include what?</p> <p>14 MR. LOCKE: It's all in his</p> <p>15 materials considered. You've got</p> <p>16 Xs down the whole column --</p> <p>17 BY MR. GOLOMB:</p> <p>18 Q. You didn't include it in</p> <p>19 your reference list. You didn't include</p> <p>20 it in the body of your report.</p> <p>21 A. Yes, I didn't.</p> <p>22 Q. You did not?</p> <p>23 A. I did not.</p> <p>24 Q. Right. You didn't cite --</p>
<p style="text-align: right;">Page 319</p> <p>1 the question.</p> <p>2 MR. LOCKE: Objection.</p> <p>3 THE WITNESS: I understand.</p> <p>4 I misunderstood.</p> <p>5 BY MR. GOLOMB:</p> <p>6 Q. You cite to Penninkilampi.</p> <p>7 You cite to Berge. You cite to Cramer</p> <p>8 2016. You cite to Terry. You cite to</p> <p>9 Langseth. You cite to Cramer '99. You</p> <p>10 cite to Gross. You -- you cite to Harlow</p> <p>11 '92. And you cite to Cramer '82. That's</p> <p>12 nine.</p> <p>13 A. Okay.</p> <p>14 Q. All -- all various studies</p> <p>15 that show a statistical increased risk</p> <p>16 from the use of talc perineally.</p> <p>17 MR. LOCKE: Objection.</p> <p>18 MR. HEGARTY: Objection.</p> <p>19 BY MR. GOLOMB:</p> <p>20 Q. Do you agree?</p> <p>21 MR. LOCKE: Objection.</p> <p>22 THE WITNESS: Yes. Although</p> <p>23 several of them just restate the</p> <p>24 same data as in some of the</p>	<p style="text-align: right;">Page 321</p> <p>1 you didn't refer to Shusan '96, Chang</p> <p>2 '97, Cook '97, Green '97, Godard '98,</p> <p>3 Ness 2000, Huncharek 2003, Mills 2004.</p> <p>4 Merritt 2008, Wu 2009,</p> <p>5 Kurta, K-U-R-T-A, 2012, Liu 2015 or</p> <p>6 Schildkraut 2016.</p> <p>7 MR. LOCKE: Objection.</p> <p>8 BY MR. GOLOMB:</p> <p>9 Q. You didn't refer to any of</p> <p>10 those 17 studies --</p> <p>11 A. Most --</p> <p>12 Q. -- in the body of your</p> <p>13 report?</p> <p>14 MR. LOCKE: Objection.</p> <p>15 THE WITNESS: Most of those</p> <p>16 studies were subsumed in the</p> <p>17 Langseth and subsequent</p> <p>18 meta-analysis.</p> <p>19 BY MR. GOLOMB:</p> <p>20 Q. What subsequent</p> <p>21 meta-analyses?</p> <p>22 A. Well, you mentioned one</p> <p>23 which was Penninkilampi, and others along</p> <p>24 the way.</p>

Jonathan Borak, M.D., DABT

Page 322	Page 324
<p>1 Q. So Langseth was 2008. So</p> <p>2 it's your testimony that Wu, Kurta, Liu</p> <p>3 and Schildkraut were all subsumed in</p> <p>4 Penninkilampi?</p> <p>5 MR. LOCKE: Objection.</p> <p>6 THE WITNESS: No. Those</p> <p>7 three were probably subsequently,</p> <p>8 but I think that they were</p> <p>9 addressed in Penninkilampi.</p> <p>10 BY MR. GOLOMB:</p> <p>11 Q. Okay. So let's go back to</p> <p>12 beryllium now. Exhibit 21. Are you with</p> <p>13 me?</p> <p>14 Does that refresh your</p> <p>15 recollection about your role in the -- in</p> <p>16 the Wanda Washington case?</p> <p>17 MR. LOCKE: Objection.</p> <p>18 THE WITNESS: I -- I see the</p> <p>19 name Wanda Washington. I see my</p> <p>20 name on it. I see Manatee County.</p> <p>21 And I remember being involved in a</p> <p>22 court case that I think had to do</p> <p>23 with class certification.</p> <p>24 BY MR. GOLOMB:</p>	<p>1 Beryllium Disease: The search for a</p> <p>2 dose-response," correct?</p> <p>3 A. That's correct.</p> <p>4 Q. Let's look at Paragraph 22.</p> <p>5 A. Paragraph --</p> <p>6 Q. I'm sorry. Exhibit 22.</p> <p>7 MR. LOCKE: We -- we don't</p> <p>8 have Exhibit 22 yet. So just --</p> <p>9 22.</p> <p>10 MR. GOLOMB: Yeah, I'm</p> <p>11 getting it for you.</p> <p>12 THE WITNESS: Thank you.</p> <p>13 (Document marked for</p> <p>14 identification as Exhibit</p> <p>15 Borak-22.)</p> <p>16 BY MR. GOLOMB:</p> <p>17 Q. So this is an article</p> <p>18 that -- that you had published in</p> <p>19 November of 2016, correct?</p> <p>20 A. That seems right.</p> <p>21 Q. You can look --</p> <p>22 A. That's what it says on the</p> <p>23 top of the page. I don't recognize the</p> <p>24 page because it's in a -- I have never</p>
Page 323	Page 325
<p>1 Q. I'm sorry?</p> <p>2 A. I remember it had something</p> <p>3 to do with class certification.</p> <p>4 Q. All right. And you remember</p> <p>5 being deposed by my partner in this case?</p> <p>6 A. Probably. I remember your</p> <p>7 partner.</p> <p>8 Q. Now, when you said this was</p> <p>9 a medical monitoring case, what -- what</p> <p>10 does that mean?</p> <p>11 A. I didn't say medical</p> <p>12 monitoring.</p> <p>13 MR. HEGARTY: Objection.</p> <p>14 BY MR. GOLOMB:</p> <p>15 Q. What did you say?</p> <p>16 A. Class certification.</p> <p>17 Q. Oh, class certification.</p> <p>18 And we -- I had asked you</p> <p>19 earlier about the fact that there was --</p> <p>20 we were talking about dose-response and</p> <p>21 beryllium, remember that?</p> <p>22 A. I think I do.</p> <p>23 Q. Okay. And you, in fact,</p> <p>24 wrote an article called, "Chronic</p>	<p>1 seen it in this format.</p> <p>2 Q. Well, this is -- do you want</p> <p>3 to look at it to confirm that that, in</p> <p>4 fact, is your article? Or do you agree?</p> <p>5 A. No, no, no, I accept it.</p> <p>6 I'm just telling you it's not familiar to</p> <p>7 look at it, because it's in a different</p> <p>8 format. It's in an HTML format as</p> <p>9 opposed to a pdf.</p> <p>10 Q. And it's an article that you</p> <p>11 wrote for the Journal of Occupational</p> <p>12 Environmental Medicine, correct?</p> <p>13 A. That's correct.</p> <p>14 Q. And it -- it indicates near</p> <p>15 the top under author information that you</p> <p>16 served as a paid expert in</p> <p>17 beryllium-related litigation, correct?</p> <p>18 A. Yes.</p> <p>19 Q. It doesn't say by whom you</p> <p>20 were paid though, right?</p> <p>21 A. No, it didn't.</p> <p>22 Q. Do you think it's of any</p> <p>23 import for the reader of an article,</p> <p>24 whether it's this article or any article,</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 326</p> <p>1 really, that in -- in addition to letting 2 the reader know that you were paid as an 3 expert, that -- by -- by whom you were 4 paid? 5 MR. HEGARTY: Objection. 6 THE WITNESS: I -- now that 7 you point it out to me, I should 8 have probably said that I had been 9 paid primarily on the defense 10 side. 11 BY MR. GOLOMB: 12 Q. And if you go to -- and 13 you -- you'll recall earlier in the 14 deposition I asked you about studies 15 concerning beryllium exposure and 16 beryllium disease dating back to 1946. 17 A. Yes. 18 Q. Right? And you, I -- I 19 think, correct me if I'm wrong, you told 20 me that you don't recall when the studies 21 were, but you know that they went back 22 decades, correct? 23 MR. LOCKE: Objection. 24 THE WITNESS: More or less</p>	<p style="text-align: right;">Page 328</p> <p>1 were talking about from before 1946? 2 A. Tabershaw and Hardy. 3 Q. I'm sorry? 4 A. Tabershaw and Hardy. 5 Q. Right. 6 And if you go above that, 7 you see the paragraph that begins with 8 but until very recently? 9 A. Yes. 10 Q. "But until very recently the 11 dose relatedness of beryllium exposure 12 was 'obscure and unclear.' In turn, the 13 lack of an objective dose-response curve 14 has complicated development of 15 appropriate health and safety programs 16 for beryllium exposed workers." 17 Did I read that correctly? 18 A. You read that correctly. 19 Q. Okay. So while the -- 20 the -- and I think you later on in the -- 21 in the article on Page 3 where it says 22 the early studies? 23 A. Yes. 24 Q. "Since earliest reports, CBD</p>
<p style="text-align: right;">Page 327</p> <p>1 what I said. 2 BY MR. GOLOMB: 3 Q. Okay. And, in fact, I got 4 that information from the article that 5 you wrote? 6 A. Fantastic. I didn't know it 7 was actually read. 8 Q. So if -- if you look at 9 Page 2 it says beryllium? In big bold 10 letters, it says, "Beryllium uncertain 11 dose relatedness." 12 Do you see that? 13 A. Yes. 14 Q. And right underneath that it 15 says, CBD is an immunologically mediated 16 granulomatous disease that importantly 17 affects the lung. The first clear 18 association between beryllium disease and 19 CBD was a 1946 report of chronic lung 20 disease in fluorescent light bulb workers 21 exposed to beryllium containing 22 phosphorous," right? 23 A. Yes. 24 Q. And that's the study that we</p>	<p style="text-align: right;">Page 329</p> <p>1 has been viewed as a puzzling disease in 2 part due to the apparent lack of 3 classical dose-response between exposure 4 and disease." 5 A. Yes. 6 Q. Right? So -- but between 7 1946 and very recently, there was no 8 question about the association between 9 beryllium exposure and beryllium disease, 10 but there was a question about 11 dose-response. Is that accurate? 12 MR. HEGARTY: Objection. 13 MR. LOCKE: Objection. 14 THE WITNESS: It was 15 difficult to set up occupational 16 health and safety programs, 17 because, in some cases people got 18 chronic beryllium disease from 19 being neighbors of the Lorraine, 20 Ohio, plant which we are talking 21 about. And in other cases, in the 22 Lorraine, Ohio, workers they did 23 not have a higher rated disease 24 despite the fact that they had</p>

83 (Pages 326 to 329)

Jonathan Borak, M.D., DABT

Page 330	Page 332
<p>1 hugely higher levels of exposure. 2 BY MR. GOLOMB: 3 Q. Right. And the same thing 4 with the -- the Cabot plant in Reading, 5 Pennsylvania. There were -- there were 6 workers who worked in the Cabot plant for 7 decades and never got chronic beryllium 8 disease, correct? 9 A. Yes -- 10 MR. LOCKE: Objection. 11 THE WITNESS: Yes, I think 12 that's true. 13 BY MR. GOLOMB: 14 Q. Right. And there were -- 15 and there were neighbors who lived in the 16 adjacent neighborhood to the Cabot plant 17 that, in fact, did get chronic beryllium 18 disease from a much less volume of 19 exposure through the ambient air, 20 correct? 21 MR. LOCKE: Objection. 22 MR. HEGARTY: Objection. 23 THE WITNESS: Although, when 24 you look at those people, none of</p>	<p>1 let's take a break. It's probably 2 a good time for a break. And I -- 3 I want to find something. 4 THE VIDEOGRAPHER: Going off 5 the record. The time is 2:49. 6 (Short break.) 7 THE VIDEOGRAPHER: We are 8 going back on record. Beginning 9 Media File Number 4. The time is 10 2:59. 11 BY MR. GOLOMB: 12 Q. Doctor, going back to 13 Exhibit 7, your report, Paragraph 42 on 14 Page 11. 15 A. Bear with me, I'm sorry, I 16 have to sort through things to make sure 17 I have the right exhibit. 18 MR. LOCKE: We -- which one 19 are you looking for? 20 THE WITNESS: 7. 21 MR. GOLOMB: 7. 22 MR. LOCKE: Okay. 23 THE WITNESS: And what page, 24 sir?</p>
Page 331	Page 333
<p>1 them were exposed after the 2 implementation of the first 3 exposure limits in 1949-1950. All 4 of the neighborhood cases were 5 people who lived in this very 6 narrow valley, down wind from the 7 plant, and all had first lived in 8 that valley prior to 1950, and at 9 the time when there was unchecked, 10 unlimited exposures. 11 BY MR. GOLOMB: 12 Q. But the -- the bottom line 13 to this, is it not, Doctor, that between 14 1946 and well into the 2000s, there was 15 no question that -- that beryllium 16 exposure caused beryllium disease but 17 there certainly was a question as to 18 whether or not there was a dose -- 19 dose-response relationship? 20 MR. LOCKE: Objection. 21 THE WITNESS: There were 22 questions about characterizing a 23 dose-response relationship. 24 MR. GOLOMB: The -- well,</p>	<p>1 BY MR. GOLOMB: 2 Q. Page 11, Paragraph 42. 3 A. 11. 42. Thank you. 4 Q. And that refers to Health 5 Canada, correct? 6 A. Yes, correct. 7 Q. And Health Canada crudely is 8 the Canadian version of the FDA? 9 MR. HEGARTY: Objection. 10 MR. LOCKE: Objection. 11 THE WITNESS: I wouldn't 12 have thought of them that way. I 13 think of them as closer to 14 Department of Health & Human 15 Services in a certain sense. 16 BY MR. GOLOMB: 17 Q. And you reviewed the Health 18 Canada assessment as part of -- deriving 19 at your opinion? 20 A. I included it in -- in my 21 review, yes. 22 Q. And you -- you quoted two 23 lines from the Health Canada assessment, 24 correct?</p>

84 (Pages 330 to 333)

Jonathan Borak, M.D., DABT

Page 334	Page 336
<p>1 A. I have two statements there 2 that I quoted, yes. 3 Q. One is, "Given that there 4 is" -- "there is the potential for 5 perineal exposure to talc from the use of 6 various healthcare products, a potential 7 concern for human health has been 8 identified," correct? 9 A. Yes, correct. 10 Q. And the second -- the second 11 sentence that you quote from the Health 12 Canada assessment report is, "There are 13 limitations with the human 14 epidemiological data. Ovarian cancer in 15 general is not well understood, and a 16 comparable animal model is not 17 available." 18 Is that -- 19 A. Yes -- 20 Q. -- the -- 21 A. -- I wrote that also. 22 Q. Okay. So let -- let's talk 23 a little bit about what else the -- the 24 Health Canada assessment says that you</p>	<p>1 A. You did. 2 Q. "Further available data are 3 indicative of a causal effect." 4 Did I read that correct? 5 A. You did. 6 Q. And then on the last 7 paragraph that begins with, "Based on." 8 Do you see that? 9 A. "Based on the available 10 information" -- 11 Q. -- "it is proposed that 12 there is a potential for harm, human 13 health, in Canada at current levels of 14 exposure. Therefore, on the basis of the 15 information presented in this draft 16 screening assessment, it is proposed to 17 conclude that talc meet the criteria 18 under Paragraph 64(c) of CEPA" -- 19 C-E-P-A -- "and it is entering or may 20 enter the environment in a quantity or 21 concentration or under conditions that 22 constitute or may constitute a danger in 23 Canada to human life or health." 24 Did I read that correctly?</p>
Page 335	Page 337
<p>1 did not include in your report. 2 MR. GOLOMB: Exhibit 25. 3 (Document marked for 4 identification as Exhibit 5 Borak-25.) 6 BY MR. GOLOMB: 7 Q. Now, in the very -- in the 8 very beginning of that, there's a 9 synopsis, do you see that? 10 A. Yes. 11 Q. And on the second page of 12 that synopsis, at the -- at the second to 13 the last paragraph, the sentence begins, 14 the meta-analysis, do you see that? 15 A. I see the paragraph that 16 starts with that word, yes. 17 Q. And it says, "The 18 meta-analysis of the available human 19 studies in the peer-reviewed literature 20 indicate a consistent and statistically 21 significant positive association between 22 perineal exposure to talc and ovarian 23 cancer." 24 Did I read that correctly?</p>	<p>1 A. You did. 2 Q. If you go to Page 16 of the 3 Canada health assessment. 4 A. I'll be there in a moment. 5 Am I allowed to mark on 6 this? 7 MR. LOCKE: You really 8 shouldn't. 9 THE WITNESS: Okay. I 10 won't. 11 Page 16? 12 BY MR. GOLOMB: 13 Q. Yes. 14 A. Yes. 15 Q. Do you see where it says 16 human studies? 17 A. Yes. 18 Q. If you go to the -- and it 19 refers to Terry. It refers to Berge. It 20 refers to Penninkilampi. It refers to 21 Taher, correct? 22 A. Several meta-analyses, yes. 23 Q. And then it says, "These 24 studies have consistently reported a</p>

85 (Pages 334 to 337)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 338</p> <p>1 positive association with ovarian cancer 2 and perineal talc exposure," correct? 3 A. That's what it says. 4 Q. "Taher and colleagues 5 identified 27 studies, 24 case-control, 6 and three cohort, for a meta-analysis. 7 Ever versus never use of perineal talc 8 and the risk of ovarian cancer resulted 9 in a statistically significant pooled 10 odds ratio of 1.28," correct? 11 A. That's what is -- right. 12 Q. That means that there is a 13 28 percent increased risk of ovarian 14 cancer with the genital use of talc? 15 MR. LOCKE: Objection. 16 MR. HEGARTY: Objection. 17 BY MR. GOLOMB: 18 Q. Correct? 19 A. That's one way of reading 20 that, yes. 21 Q. Go to Page 18. You see it 22 says, "Mode of action"? 23 A. I see that. 24 MR. LOCKE: There's a</p>	<p style="text-align: right;">Page 340</p> <p>1 necrosis factor, and other inflammatory 2 markers are detected in the blood of 3 women prior to diagnosis of ovarian 4 cancer." 5 Do you agree with that? 6 MR. HEGARTY: Objection. 7 MR. LOCKE: Objection. 8 THE WITNESS: I agree that 9 that's what's written. 10 BY MR. GOLOMB: 11 Q. Do you agree with the 12 statement or do you not have an opinion 13 on it one way or the other? 14 A. Detected in the blood of 15 women prior to diagnosis, that is 16 generally correct, but it does not imply 17 what it -- it does not mean what it seems 18 to imply. 19 Q. Do you agree with the 20 statement that with respect to talc 21 specifically, local chronic irritation, 22 leading to an inflammatory response, is 23 one possible mechanism of tumor 24 progression that is frequently</p>
<p style="text-align: right;">Page 339</p> <p>1 handwritten note to that, next to 2 that, that was not part of the 3 original. 4 MR. GOLOMB: That's my 5 handwriting. 6 MR. LOCKE: Okay. 7 BY MR. GOLOMB: 8 Q. Okay. Do you recall reading 9 this section of the study? 10 A. I'm sure that I did. But I 11 don't recall it. 12 Q. Okay. It says, on 13 paragraph -- the second paragraph that 14 begins, "With respect." 15 Do you see that? 16 A. Yes. 17 Q. "With respect to the talc 18 specifically, local chronic irritation 19 leading to an inflammatory response is 20 one possible mechanism of tumor 21 progression that is frequently 22 hypothesized. It is known that 23 persistent indications of inflammation, 24 including C-reactive protein, tumor</p>	<p style="text-align: right;">Page 341</p> <p>1 hypothesized? 2 A. It has been hypothesized, 3 perhaps frequently. But to my knowledge, 4 there is no evidence that talc causes 5 inflammation and cancer of the ovary. 6 Q. And if you go to Page 19. 7 The second-to-last paragraph. Now, 8 you've read Taher before, right? 9 T-A-H-E-R? 10 A. Yes, yes, yes. 11 Q. It says, "The most recent 12 meta-analysis," and it refers to Taher 13 2018, "employed the Hill criteria to 14 assess the epidemiological evidence of a 15 causal relationship." 16 Correct? 17 A. Yes. That's what it says. 18 Q. "These considerations form a 19 framework for evaluating evidence in 20 humans to help determine whether observed 21 associations are causal," correct? 22 A. Yes. Used for inference of 23 causation. 24 Q. Now, that's something that</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 342</p> <p>1 you did not do, because you weren't asked</p> <p>2 to do that, correct?</p> <p>3 MR. LOCKE: Objection.</p> <p>4 MR. HEGARTY: Objection.</p> <p>5 THE WITNESS: I was not</p> <p>6 inferring causation. I was</p> <p>7 reviewing what was presented. And</p> <p>8 you might add here, for the</p> <p>9 record, that Taher concluded that</p> <p>10 the risk was possible --</p> <p>11 BY MR. GOLOMB:</p> <p>12 Q. And --</p> <p>13 A. -- based upon the Bradford</p> <p>14 Hill analysis that you --</p> <p>15 Q. Yeah. I know you keep</p> <p>16 saying that. And go to Page 21 of this</p> <p>17 report. That's the third time you said</p> <p>18 that.</p> <p>19 A. I wasn't counting. But</p> <p>20 perhaps you're right.</p> <p>21 Q. "The most recent</p> <p>22 meta-analysis detailed above, Taher" --</p> <p>23 MR. LOCKE: Okay. Where are</p> <p>24 you at?</p>	<p style="text-align: right;">Page 344</p> <p>1 this -- the body of this 13-page report</p> <p>2 includes the totality of your opinions in</p> <p>3 this case, correct?</p> <p>4 MR. LOCKE: Objection.</p> <p>5 THE WITNESS: They include</p> <p>6 my opinions with respect to</p> <p>7 whether, when, and by whom it had</p> <p>8 been determined that perineal use</p> <p>9 of talc-containing powder causes</p> <p>10 ovarian cancer.</p> <p>11 If you ask me other</p> <p>12 questions, it's possible that I</p> <p>13 will have other opinions.</p> <p>14 BY MR. GOLOMB:</p> <p>15 Q. Well --</p> <p>16 MR. LOCKE: Just so we</p> <p>17 know -- and he also attached. You</p> <p>18 want to call Exhibit 7 his report,</p> <p>19 but he's got pages and pages that</p> <p>20 follow that, which we've gone</p> <p>21 through, and they've been entered</p> <p>22 in as exhibits.</p> <p>23 MR. GOLOMB: Fair enough.</p> <p>24 Let's go through the list.</p>
<p style="text-align: right;">Page 343</p> <p>1 MR. GOLOMB: Page 21.</p> <p>2 MR. LOCKE: Oh, middle of</p> <p>3 the page.</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. Just above 6.2. "The most</p> <p>6 recent analysis detailed above, and</p> <p>7 consistent with the Hill criteria,</p> <p>8 suggests a small, but consistent</p> <p>9 statistically significant positive</p> <p>10 association between ovarian cancer and</p> <p>11 perineal exposure to talc."</p> <p>12 A. That's what it says.</p> <p>13 Q. Right. It doesn't say</p> <p>14 anything about being possible, correct?</p> <p>15 A. Ah, but Taher, which you're</p> <p>16 quoting, specifically says it's only</p> <p>17 possible.</p> <p>18 Q. You sure about that?</p> <p>19 A. I think so.</p> <p>20 Q. Let's look at -- so</p> <p>21 yesterday -- well, before I go there, let</p> <p>22 me ask you this.</p> <p>23 So going back to seven of</p> <p>24 your report. You are, just to be clear,</p>	<p style="text-align: right;">Page 345</p> <p>1 BY MR. GOLOMB:</p> <p>2 Q. Where in Paragraph 8 -- I'm</p> <p>3 sorry, Exhibit 8 --</p> <p>4 A. Which exhibit?</p> <p>5 Q. Exhibit 8.</p> <p>6 A. Exhibit 8.</p> <p>7 Q. Where in Exhibit 8 do you</p> <p>8 express any opinions?</p> <p>9 A. Exhibit 8 was broken from</p> <p>10 the original report and was part of 7.</p> <p>11 Q. Right. My question was,</p> <p>12 where -- I'm just responding to a point</p> <p>13 that was made, a fair point, that was</p> <p>14 made by Mr. Locke. And my question to</p> <p>15 you very simply is, where in Exhibit 8 do</p> <p>16 you express an opinion on anything?</p> <p>17 A. There is no specific</p> <p>18 opinions at all in Exhibit 8.</p> <p>19 I did not submit Exhibit 8</p> <p>20 as a separate standalone.</p> <p>21 Q. And take a look at</p> <p>22 Exhibit 10 which is the -- the list of</p> <p>23 expert reports, testimony, and other</p> <p>24 related materials.</p>

Jonathan Borak, M.D., DABT

Page 346	Page 348
<p>1 Where in Exhibit 10 do you</p> <p>2 express an opinion on anything?</p> <p>3 A. There is no opinion</p> <p>4 contained in Exhibit 10.</p> <p>5 That's not correct. I have</p> <p>6 no opinion contained in Exhibit 10. Most</p> <p>7 of Exhibit 10 reflects the opinions of a</p> <p>8 great number of people. So we have to be</p> <p>9 careful how we use the word opinion</p> <p>10 there.</p> <p>11 Q. Well, my -- my question was</p> <p>12 about your opinion, right?</p> <p>13 A. I assume that that's what</p> <p>14 you were asking, but we --</p> <p>15 Q. Well, you don't have to</p> <p>16 assume it. If you want the question</p> <p>17 re-read, you can see that is specifically</p> <p>18 my -- my question.</p> <p>19 A. Ask it back. Just so I --</p> <p>20 just for clarity.</p> <p>21 Q. Where in Exhibit 10 do you,</p> <p>22 Dr. Jonathan Borak, express an opinion on</p> <p>23 anything?</p> <p>24 A. That's a new question. The</p>	<p>1 expressed by me in Exhibit 17.</p> <p>2 Q. Okay. So going back to my</p> <p>3 original question then. Exhibit 7, the</p> <p>4 totality of your opinions is on Page 13</p> <p>5 of this report where you say, "In</p> <p>6 summary, I conclude that science has not</p> <p>7 established that perineal use causes</p> <p>8 ovarian cancer" --</p> <p>9 MR. LOCKE: Objection.</p> <p>10 MR. GOLOMB: I'm not -- I'm</p> <p>11 not done, but --</p> <p>12 MR. LOCKE: Okay.</p> <p>13 MR. GOLOMB: -- I understand</p> <p>14 by the pause that you could have</p> <p>15 thought I was.</p> <p>16 BY MR. GOLOMB:</p> <p>17 Q. You then go on to</p> <p>18 Paragraph 47 and you say, "Accordingly,</p> <p>19 it is my opinion to a reasonable degree</p> <p>20 of scientific certainty that science has</p> <p>21 not established that perineal talc use</p> <p>22 causes ovarian cancer."</p> <p>23 That's your opinion,</p> <p>24 correct?</p>
Page 347	Page 349
<p>1 answer is I didn't do that in Exhibit 10.</p> <p>2 Q. Same question for</p> <p>3 Exhibit 14.</p> <p>4 A. Your question is, did I</p> <p>5 express any opinion --</p> <p>6 Q. Where in Exhibit 14 do you,</p> <p>7 Dr. Jonathan Borak, express an opinion on</p> <p>8 anything?</p> <p>9 A. I did not express any</p> <p>10 opinions in Exhibit 14.</p> <p>11 Q. Exhibit 15, the chronology</p> <p>12 of opinions. Where do you, Dr. Jonathan</p> <p>13 Borak, express an opinion on anything?</p> <p>14 A. Exhibit 15 does not contain</p> <p>15 any of my specific opinions.</p> <p>16 Q. Exhibit 16, where do you,</p> <p>17 Dr. Jonathan Borak, express an opinion on</p> <p>18 anything?</p> <p>19 A. Exhibit 16 does not contain</p> <p>20 any opinions of mine.</p> <p>21 Q. Exhibit 17, the web pages.</p> <p>22 Where do you, Dr. Jonathan Borak, express</p> <p>23 an opinion on anything?</p> <p>24 A. There are no opinions</p>	<p>1 A. Yes. It's my opinion.</p> <p>2 MR. LOCKE: Well, objection.</p> <p>3 THE WITNESS: Excuse me.</p> <p>4 MR. LOCKE: Go ahead.</p> <p>5 THE WITNESS: No, no, no,</p> <p>6 please go ahead.</p> <p>7 MR. LOCKE: No, that -- I</p> <p>8 was just going to say objection.</p> <p>9 THE WITNESS: Okay. Got it.</p> <p>10 BY MR. GOLOMB:</p> <p>11 Q. That's your opinion</p> <p>12 expressed within the four corners of this</p> <p>13 report?</p> <p>14 A. Yes.</p> <p>15 Q. Nothing more, nothing less?</p> <p>16 MR. HEGARTY: Objection.</p> <p>17 THE WITNESS: My opinion is</p> <p>18 that, in the strongest published</p> <p>19 statement I found regarding</p> <p>20 perineal talc and ovarian cancer</p> <p>21 is the IARC conclusion that the</p> <p>22 evidence is limited and that it is</p> <p>23 possibly carcinogenic, yes.</p> <p>24 BY MR. GOLOMB:</p>

88 (Pages 346 to 349)

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 350</p> <p>1 Q. And -- and as you told us 2 earlier, that you -- you believe that in 3 order for there to be scientific 4 certainty, that there must be proof 5 beyond a reasonable doubt? 6 MR. LOCKE: Objection. 7 MR. HEGARTY: Objection. 8 BY MR. GOLOMB: 9 Q. That's what you told us? 10 MR. LOCKE: Objection. 11 THE WITNESS: Yes, but 12 that's separate from this 13 document. This document was a 14 review of who said what, where and 15 when. 16 BY MR. GOLOMB: 17 Q. Understood. 18 A. Okay. 19 Q. Okay. And that is the 20 totality of what you were asked to do, 21 that is the totality of your opinions in 22 this case, and that is the totality of 23 what you wrote in your 13-page report 24 dated February 25, 2019?</p>	<p style="text-align: right;">Page 352</p> <p>1 Q. Okay. And we're going to 2 look at the updated materials. And so, 3 in fact, you did provide exhibit -- 4 I'll -- I'll -- I haven't -- since I just 5 got this yesterday, I haven't had an 6 opportunity to -- to photocopy it. But I 7 assume that everybody has this. 8 (Document marked for 9 identification as Exhibit 10 Borak-29.) 11 BY MR. GOLOMB: 12 Q. It is Dr. Borak's 13 supplemental materials considered, 14 correct? 15 A. Correct. I think that's 16 right. 17 Q. And these include some 18 expert reports, an expert deposition, and 19 one, two, three, four, five -- six 20 separate published scientific study -- 21 literature? 22 A. Yes, that's correct. There 23 were actually for the record more 24 articles which I read and threw away. An</p>
<p style="text-align: right;">Page 351</p> <p>1 MR. LOCKE: Objection. 2 MR. HEGARTY: Objection. 3 BY MR. GOLOMB: 4 Q. Correct? 5 A. That is the totality of that 6 which I intended to opine upon. 7 Q. So, we agree, correct? 8 MR. HEGARTY: Objection. 9 MR. LOCKE: Objection. 10 THE WITNESS: It is possible 11 that I could be asked questions as 12 I was today about things that go 13 beyond the pages and about some of 14 those I have opinions. 15 BY MR. GOLOMB: 16 Q. Now -- 17 A. But it was not my intention 18 to present those other opinions. 19 Q. Now, so -- and you -- and 20 since February 25th of 2019, you haven't 21 drafted a supplemental report, correct? 22 A. I -- I offered a supplement, 23 but it was merely an updating of some of 24 the materials I had reviewed.</p>	<p style="text-align: right;">Page 353</p> <p>1 example you gave earlier where I might 2 have read something and found it was not 3 worth -- not useful. 4 But those were the ones that 5 I continued to maintain, because I 6 thought they were useful. 7 Q. Okay. Why -- why didn't you 8 include the ones that you, as you said, 9 threw away? 10 A. Because they ultimately 11 turned out not to be about talc, or 12 perhaps they ultimately turned out to be 13 about something other than ovarian 14 cancer. 15 For reasons that they did 16 not -- they -- they were not relevant and 17 specific to the issues. 18 Q. Okay. And so, and these are 19 things that you reviewed since 20 February 25th? 21 A. That's what I said. 22 Q. Okay. And you -- you 23 haven't and you don't intend to 24 supplement your report of February 25th,</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 354</p> <p>1 based on your review of this?</p> <p>2 A. They -- I did not change my</p> <p>3 opinions as a result of those reviews.</p> <p>4 Q. All right. One -- one of</p> <p>5 the articles that you -- you included was</p> <p>6 Lisio, "High Grade Serous Ovarian Cancer:</p> <p>7 Basic sciences, clinical and therapeutic</p> <p>8 standpoints," correct?</p> <p>9 A. Yes. I think that's right.</p> <p>10 I -- I don't doubt it -- please go ahead.</p> <p>11 I don't doubt it.</p> <p>12 Q. Okay. That wasn't one of</p> <p>13 the throwaway articles, that's one of the</p> <p>14 articles that you included?</p> <p>15 A. Yes, that's correct.</p> <p>16 Q. All right. And -- and what</p> <p>17 is it that you got out of Lisio that --</p> <p>18 that caused you to include it on here?</p> <p>19 A. I read it. I read it during</p> <p>20 this period of time because it was a very</p> <p>21 recent publication.</p> <p>22 Q. Okay. So let's take a look</p> <p>23 at Lisio which we've marked as</p> <p>24 Exhibit 32.</p>	<p style="text-align: right;">Page 356</p> <p>1 smoking, and usage of perineal talc."</p> <p>2 Is that it?</p> <p>3 Q. Yeah.</p> <p>4 MR. GOLOMB: If we take a --</p> <p>5 let's take a short break. I'm</p> <p>6 going to take a look at my notes</p> <p>7 and talk to my colleagues, we may</p> <p>8 be done.</p> <p>9 THE VIDEOGRAPHER: Going off</p> <p>10 the record. The time is 3:20.</p> <p>11 (Short break.)</p> <p>12 THE VIDEOGRAPHER: We're</p> <p>13 going back on record. Beginning</p> <p>14 media file number five. The time</p> <p>15 is 3:26.</p> <p>16 MR. GOLOMB: Doctor, that's</p> <p>17 all the questions we have.</p> <p>18 MR. LOCKE: Thank you.</p> <p>19 THE WITNESS: Thank you.</p> <p>20 Nice to see you again.</p> <p>21 MR. GOLOMB: Nice seeing</p> <p>22 you.</p> <p>23 THE VIDEOGRAPHER: This</p> <p>24 concludes today's deposition. We</p>
<p style="text-align: right;">Page 355</p> <p>1 (Document marked for</p> <p>2 identification as Exhibit</p> <p>3 Borak-32.)</p> <p>4 BY MR. GOLOMB:</p> <p>5 Q. I'm going to hand you --</p> <p>6 haven't had a chance to mark this. We</p> <p>7 just got this list last night.</p> <p>8 So just looking at the --</p> <p>9 looking at the article, does that refresh</p> <p>10 your memory as to really what it was --</p> <p>11 what it was about?</p> <p>12 A. It looks -- it looks</p> <p>13 certainly familiar.</p> <p>14 Q. Okay. Can you go to Page 6.</p> <p>15 A. Bear with me a minute.</p> <p>16 Page 6. Yes.</p> <p>17 Q. Can you go to the -- do you</p> <p>18 see the first full paragraph that begins</p> <p>19 with the word other?</p> <p>20 A. Yes.</p> <p>21 Q. Can you just read that</p> <p>22 sentence for us out loud?</p> <p>23 A. "Other potential risk</p> <p>24 factors include obesity, diabetes,</p>	<p style="text-align: right;">Page 357</p> <p>1 are going off record. The time is</p> <p>2 3:26.</p> <p>3 (Excused.)</p> <p>4 (Deposition concluded at</p> <p>5 approximately 3:26 p.m.)</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p>

Jonathan Borak, M.D., DABT

<p style="text-align: right;">Page 358</p> <p>1 2 CERTIFICATE 3 4 5 I HEREBY CERTIFY that the 6 witness was duly sworn by me and that the 7 deposition is a true record of the 8 testimony given by the witness. 9 10 It was requested before 11 completion of the deposition that the 12 witness, JONATHAN BORAK, M.D., DABT, have 13 the opportunity to read and sign the 14 deposition transcript. 15 16 _____ 17 MICHELLE L. GRAY, 18 A Registered Professional 19 Reporter, Certified Shorthand 20 Reporter, Certified Realtime 21 Reporter and Notary Public 22 Dated: April 2, 2019 23 24 (The foregoing certification of this transcript does not apply to any reproduction of the same by any means, unless under the direct control and/or supervision of the certifying reporter.)</p>	<p style="text-align: right;">Page 360</p> <p>1 - - - - - 2 E R R A T A 3 - - - - - 4 PAGE LINE CHANGE 5 6 REASON: _____ 7 8 REASON: _____ 9 10 REASON: _____ 11 12 REASON: _____ 13 14 REASON: _____ 15 16 REASON: _____ 17 18 REASON: _____ 19 20 REASON: _____ 21 22 REASON: _____ 23 24 REASON: _____</p>
<p style="text-align: right;">Page 359</p> <p>1 INSTRUCTIONS TO WITNESS 2 3 Please read your deposition 4 over carefully and make any necessary 5 corrections. You should state the reason 6 in the appropriate space on the errata 7 sheet for any corrections that are made. 8 After doing so, please sign 9 the errata sheet and date it. 10 You are signing same subject 11 to the changes you have noted on the 12 errata sheet, which will be attached to 13 your deposition. 14 It is imperative that you 15 return the original errata sheet to the 16 deposing attorney within thirty (30) days 17 of receipt of the deposition transcript 18 by you. If you fail to do so, the 19 deposition transcript may be deemed to be 20 accurate and may be used in court. 21 22 23 24</p>	<p style="text-align: right;">Page 361</p> <p>1 ACKNOWLEDGMENT OF DEPONENT 2 3 4 I, _____, do 5 hereby certify that I have read the 6 foregoing pages, 1 - 362, and that the 7 same is a correct transcription of the 8 answers given by me to the questions 9 therein propounded, except for the 10 corrections or changes in form or 11 substance, if any, noted in the attached 12 Errata Sheet. 13 14 15 _____ 16 JONATHAN BORAK, M.D., DABT DATE 17 18 19 Subscribed and sworn 20 to before me this 21 ____ day of _____, 20____. 22 My commission expires: _____ 23 24 _____ Notary Public</p>

Jonathan Borak, M.D., DABT

Page 362	
1	LAWYER'S NOTES
2	PAGE LINE
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____
9	_____
10	_____
11	_____
12	_____
13	_____
14	_____
15	_____
16	_____
17	_____
18	_____
19	_____
20	_____
21	_____
22	_____
23	_____
24	_____

A				
a.m 1:15 9:7 215:14	177:21 addition 240:7 242:1 268:13 326:1	126:8 129:23 130:12 132:2 163:19,20,20 180:14 300:1 303:8	239:13 analyses 74:1,12 74:14 analysis 76:4 77:23 78:1,3,6 98:3,5 102:2,4 102:7,8 103:5 103:8,10 113:23 114:21 126:20,24 161:6,8,12 197:11 222:2,5 222:14 342:14 343:6	answer's 126:6 answered 75:1 82:15 188:20 194:18 196:10 301:12 answering 175:17 answers 21:6 29:20 279:20 361:8 anybody 12:12 21:10 136:1 140:7 168:1 anymore 199:21 anyway 65:19 apologize 114:3 158:3 222:1 249:16 263:8 316:7 apology 187:16 Appalachia 64:3 apparent 69:11 329:2 appeal 101:8 APPEARAN... 2:1 3:1 appeared 282:18 287:8 appears 215:12 303:14 311:19 314:1 appendix 244:22 apples-and-or... 270:23 applicants 122:22 124:20 application 59:4 113:16 applies 217:15 apply 358:19 appreciate 248:17 253:3 approach 89:20 283:1 approached 89:15 91:11
able 119:2,13 120:18 224:17	additional 159:11,16 208:2 229:19 279:17 addressed 322:9 addressing 313:1 adequately 69:10 adjacent 330:16 adjective 311:18 312:21 313:24 adjudicated 88:8 299:20 adjudicating 22:12 adjunct 44:24 178:14 Administration 88:9 administrative 88:1 advance 126:3 advantage 51:20 advertised 139:2 advertisement 139:12 advice 127:13 Advisory 6:16 advocating 226:19 Affidavit 6:6 affiliated 19:15 affiliates 20:24 agency 17:19 18:18 agents 20:24 ago 14:11 59:11 61:17 74:4 104:12 107:15 118:13,15 120:3 122:12	agree 33:24 41:19 82:22,24 83:4 118:2 182:17 191:6 238:6 296:22 319:20 325:4 340:5,8,11,19 351:7 agreement 150:15 201:12 Ah 93:23 343:15 ahead 146:8 179:6 204:9 233:7 349:4,6 354:10 air 330:19 airplane 106:18 Alco 106:24 all-inclusive 110:3,6,11 alleged 195:13 allow 12:20,21 68:10 189:2 allowed 142:3 337:5 aluminum 106:24 113:15 amazing 310:13 310:15 ambient 330:19 ambulatory 37:11 amenable 74:2,8 101:15 America 18:15 American 50:15 50:19 54:6 Amherst 33:5 amount 98:24 127:1 133:7 309:2,6 amounts 68:22	analyze 27:6,11 28:11,14 29:14 195:16 and/or 14:22,24 15:3 17:18,20 24:24 27:1,7 43:16 66:20 358:21 anew 199:8 Angeles 253:17 animal 334:16 Ann 43:12 answer 8:5 12:21 15:19 17:11 25:3 29:1 30:14 35:22 54:4 57:8 81:24 82:2,4,6,8 101:17 105:20 113:19 114:2 114:17,22 130:14 142:3 143:17 152:6 174:14 177:15 177:24 178:20 180:12 213:7 216:21 217:3 217:10 236:22 244:1,13,16 265:14 279:19 285:21 308:7 347:1	

126:10	26:2,9 61:9,12	asking 10:8	195:13 198:17	205:15,18,23
approaches	61:15,18 62:1	21:14 35:3,13	226:13 228:4	245:7 263:2
35:17	62:8,11 63:9	46:7 56:24	247:7 276:1	attended 19:1,3
appropriate	63:11 109:24	72:5 77:3	278:7 281:20	attending 37:10
28:2 287:10	110:24 111:5	116:4,21	281:22 302:24	attention 107:16
303:15 328:15	111:23 112:1	123:18 125:13	303:1,12	attorney 12:14
359:6	112:23 113:21	129:18,20,20	305:19 308:11	105:15 230:15
approximately	139:7 176:3	144:6,20 168:9	309:24 310:5	359:16
88:17 93:3	239:19 266:22	175:3 180:1	327:18 329:8	Attorneys 6:17
289:14,24	268:15 269:20	188:17 210:9	335:21 338:1	August 142:20
357:5	270:14,18	227:23,24	343:10	143:11 145:8
April 1:10 9:6	279:8,14 290:9	232:24 235:10	associations	147:8 149:10
154:22 157:16	294:14 352:24	237:5 239:3	18:15 288:7	150:2 154:22
159:3,12 169:9	354:5,13,14	251:20 275:17	302:2 309:16	157:16 159:2
169:24 170:6	asbestos 21:3	290:18,20	341:21	159:24
171:4 177:10	97:4	299:10 307:10	assume 49:6	Australia 293:3
358:15	ASHCRAFT	314:10 346:14	90:1 119:16	author 150:7
area 19:21 39:4	2:8	aspects 60:9	120:20 123:17	209:9 325:15
48:15 147:18	aside 109:20	64:12	137:11,13	authored 17:8
303:18 306:14	315:22	assess 341:14	145:5,12,14,14	27:20 185:7
308:2	asked 29:14	assessment 6:11	170:3 346:13	192:12,21
areas 121:8	30:22,23 31:4	39:4 46:21	346:16 352:7	209:12
argument 103:1	31:10 43:24	113:3 121:18	assumed 140:15	authors 219:15
arrangement	49:8 50:11	122:7 220:16	assuming 133:9	Automobile
129:15,17	90:3 97:17	333:18,23	asthma 113:15	92:12
130:3 152:24	103:9,14,20	334:12,24	astonished	available 135:19
arrive 134:23	115:9,12,16	336:16 337:3	261:7	163:22 236:15
Arrow 96:4,10	125:18 126:13	assessments	Atlantic 155:22	236:19 309:15
96:11,23 97:5	163:21 175:18	121:12,13	184:21	334:17 335:18
97:11	194:23 195:3	assignment	attach 215:2	336:2,9
arsenic 64:15	195:10,15	201:8 231:19	attached 84:4	aware 22:24
112:9	196:4,12,15,23	assist 214:5	249:2 344:17	23:1 43:23
article 62:13,17	197:12,19,20	assistants 47:15	359:12 361:11	71:6 126:22
63:1 65:1	219:4,9,12,18	associate 37:9	attachment 5:11	135:23 147:22
66:16 73:17	224:4 232:3,6	38:10 44:11,18	5:14,15,19	147:24 148:2
74:17,18 75:17	232:13 238:12	151:18,20	172:23 248:20	148:19 149:20
119:24 228:3	239:22 244:13	178:14	249:1,4 250:18	161:16 162:15
259:19 266:11	265:11 269:2	associated 69:12	250:21 251:23	162:18,19,23
267:13,14	271:19,21	96:18 279:9	263:11 265:2	164:7 181:23
268:6 280:8,18	272:4,15 273:1	306:15	266:20 271:1	242:2 253:11
289:13 303:11	282:23,24	association 22:3	278:17 279:24	253:17,20
323:24 324:17	283:1 288:21	29:21 31:1	280:24 283:22	257:12,20,22
325:4,10,23,24	299:4 300:2	44:2 48:23	286:18 287:13	258:6 260:19
325:24 327:4	305:3 308:14	49:13 50:19,22	292:9 296:15	261:14,17
328:21 355:9	323:18 326:14	99:5 146:22	296:16	273:12 291:4
articles 14:22	342:1 350:20	147:20,23	attachments	299:18 301:3
15:9 16:10	351:11	150:1 152:13	161:23 199:13	

B	balance 306:12	112:20 137:21	big 126:12 327:9	boards 20:23,23
B 4:10 5:2 6:2	based 30:13	156:3 250:19	bill 130:7 133:11	21:7 40:2,20
7:2	92:4 190:11	252:22 264:21	133:13,16,20	40:21
back 10:20	288:8 304:20	268:8 271:6	135:6,10	boasting 91:17
38:19 73:24	336:7,9 342:13	297:21 310:23	136:18,20,21	body 26:9 28:10
81:14 83:7,11	354:1	350:2	153:1 166:20	222:9 234:4,6
83:13,18 89:9	Basic 6:21 354:7	benchmark	166:24 171:7	237:7,14 246:7
90:21 93:18	basis 22:16	300:13	230:1	246:11,16
102:22 105:12	38:22 68:21	Benjamin 2:3	billed 130:5	247:24 248:3
107:2 114:11	133:13 140:12	230:15	165:17 168:20	248:11 249:9
116:7,9 117:16	148:5,7 174:23	Berge 319:7	billing 130:10	249:11,18
136:10 144:4	177:18,20	337:19	229:5,7,23	250:4,8 267:7
145:8 148:15	182:8 219:23	berylliosis 65:14	230:22 231:3	268:6 277:16
151:4,7 152:9	220:3,16	66:20 68:23	280:17	292:2 293:6,20
166:5 178:4	239:15 336:14	beryllium 6:8	bills 130:13,18	297:8 300:4,23
182:14 184:17	Bear 332:15	60:23 61:4,19	130:21 131:1,7	305:9,17
186:2 187:9	355:15	64:16,18 65:2	131:8 132:19	316:18 320:20
191:2 193:9	beat 187:11	65:4,12,14	133:23,24	321:12 344:1
197:22 198:18	Beautiful 33:23	66:5,9,12,16	134:11,12	bold 327:9
198:23 208:12	becoming	66:19,20 67:16	135:3 137:6,9	book 55:18 60:5
212:24 220:7	176:19	68:9,17,20,21	142:13 157:13	60:7 138:13,22
228:21 229:3	began 87:12	68:23 69:4,22	157:14,15,17	139:18 269:9
231:12 233:3	90:18 142:13	78:10,11,11,12	159:11,15	270:9,10,12
240:14,19	174:18 202:4	78:17 96:14,18	169:9,11,11,19	bookkeeping
245:8 261:23	214:19 260:18	104:1,7 105:23	169:24 170:7	135:8
265:16 275:10	beginning 1:15	112:6 113:10	171:2,3	books 53:13,22
285:7 296:6	33:1 38:11	314:10,12,13	bimonthly	53:23 59:23
311:7 315:12	62:2,3 117:17	315:20 316:4	182:10	60:2 62:3
318:3,7 322:11	184:18 194:20	322:12 323:21	biography	268:23 269:2,7
326:16,21	198:14 228:21	324:1 326:15	117:22	270:19
332:8,12	231:15 273:3	326:16 327:9	biological	Borak 1:13 4:5
343:23 346:19	332:8 335:8	327:10,18,21	121:10 203:13	4:19,21 5:6,22
348:2 356:13	356:13	328:11,16	221:1 288:11	6:6,14 9:14,21
background	begins 62:8	329:9,9,18	biostatistics	10:4 14:3
35:20,23	229:7 246:2,24	330:7,17	99:10	32:11 51:22
132:19 143:5	259:3 273:7,8	331:15,16	bisser@golom...	52:22 73:7,16
147:9,10	273:10 328:7	beryllium-rel...	2:6	73:18 74:4
231:16 242:8	335:13 336:7	122:7 325:17	bit 22:16 202:7	84:11 86:8,10
250:8 262:4,8	339:14 355:18	best 61:23 62:10	229:6,18 270:8	86:13,24 107:3
262:11 277:22	behalf 13:19	72:8 173:23	334:23	110:14 131:3,7
292:23	19:11,24 28:8	177:2	Blackwell 99:19	132:16 136:13
BACON 3:2	66:6 90:8 91:4	beyond 307:13	Blaes 264:15,19	142:11 154:20
bad 34:3,6	93:21 94:12	307:21 308:21	bless 291:23	157:2 169:12
Bair 98:7,10,20	96:8,10	309:7 310:1,24	block 293:24	170:7 205:15
100:18,19	believe 10:14	350:5 351:13	blocks 52:19	205:19 207:1
102:17	11:9 13:15	Bibliography	blood 340:2,14	207:15 229:1
	21:24 104:11	4:20	board 58:5,8,11	229:24 280:15

346:22 347:7 347:13,17,22 358:8 361:16 Borak's 121:7 352:12 Borak-1 4:14 13:10 Borak-10 5:11 263:6 Borak-14 5:14 278:23 Borak-15 5:15 281:4 Borak-16 5:17 286:23 Borak-17 5:19 292:18 Borak-19 5:21 205:7 Borak-2 4:15 31:18 Borak-21 6:6 314:24 Borak-22 6:8 324:15 Borak-25 6:10 335:5 Borak-28 6:12 158:9 Borak-29 6:14 352:10 Borak-3 4:16 229:14 Borak-30 6:16 154:12 Borak-31 6:18 255:21 Borak-32 6:20 355:3 Borak-33 7:6 230:12 Borak-4 4:17 83:21 Borak-5 4:20 116:20 Borak-6 4:22 94:23	Borak-7 5:6 172:10 Borak-8 5:8 245:14 Borak-9 5:9 274:17 Borges 56:2 born 199:7 borrow 235:23 bottom 49:20 73:14 157:21 207:7 331:12 Boulevard 3:3 Bradford 101:23 102:1,4 102:7,8,24 103:5,8,10 113:22 114:5,6 114:10,17,20 115:13 161:6,8 161:12 162:9 197:10 222:1,5 222:8,14 342:13 brain 73:4,8 break 12:10,13 12:15 116:22 117:10,14 134:1 171:1 205:1 228:9,18 274:2 311:9 332:1,2,6 356:5,11 breaks 12:10 131:21 brevity 293:14 brief 85:20 169:8 briefly 10:6 156:12 bright 56:5 bring 107:16 brings 103:4 115:3 279:12 broke 117:20 broken 131:17 345:9	Brush 106:15 build 202:18 building 2:13 239:13 bulb 65:24 66:8 327:20 bunch 93:13 108:13 Burke 99:19 business 91:15 busy 127:12 button 315:11 316:4 buys 39:6 <hr/> C <hr/> C 3:3 C-E-P-A 336:19 C-reactive 339:24 Cabot 96:4,13 96:22 97:2 330:4,6,16 calculation 131:5,8 calendar 166:4 California 104:10 call 108:18 127:14 145:14 150:14 191:16 191:18 344:18 called 13:24 47:16 78:17 99:3,18 126:8 127:6 146:10 259:19 279:24 282:5 293:11 323:24 calls 57:8 134:8 140:18 camera 91:13,18 campus 51:19 52:15 Canada 18:12 50:5 333:5,7 333:18,23	334:12,24 336:13,23 337:3 Canadian 333:8 cancer 6:20 18:19 19:12 21:3,12 22:4 29:22 31:2,6 31:12 44:3 48:24 49:13,14 50:19 55:7 63:3 73:4 79:17,24 80:21 81:4,13,23 82:7,21 103:16 146:18,24 147:16,21 149:5 150:2 152:14 175:11 175:11 176:2 193:22 194:15 195:15,21 196:14,15 198:18 202:11 203:17 204:6 216:24 217:2 219:8,11 221:1 223:5 226:14 226:20 227:5 228:5 239:17 239:18 240:3 243:15 247:5 247:16 251:4 251:18 252:4 257:16,24 258:9,9 259:8 259:11,15,20 260:7,9,10,11 262:16 271:8 272:3 273:15 275:5 276:2 279:10 281:24 285:3 288:13 289:16 290:1 291:8 293:2 295:3,8,20,23 295:24 297:11	302:18 303:13 305:20 306:15 310:5,12,16,21 311:1 312:2,17 316:23 334:14 335:23 338:1,8 338:14 340:4 341:5 343:10 344:10 348:8 348:22 349:20 353:14 354:6 cancer.' 247:9 capacity 90:6 312:1 captured 279:21 carcinogenic 79:20 349:23 carcinogenicity 147:15 306:16 care 13:19 14:1 20:1,5 140:5,7 140:10 199:19 career 32:22 90:13,16 careful 151:10 346:9 carefully 48:3 359:4 carried 180:19 181:16,20 case 10:13,15 11:2,5 13:3 16:5 17:5 22:24 24:10 27:1,16,22 29:17 30:22 41:9 66:6 78:19 81:7 88:2 96:3,8,9 96:14,21 97:21 98:3,14,16,17 99:17,22 100:1 100:6,8,12 101:12 103:4 104:7,10 106:16 115:1,2 115:3 123:3
---	---	--	--	--

128:10 129:2	283:17 314:10	center 17:22	challenges 35:17	78:12,16,17
130:13 132:1,3	329:17,21	18:4 59:15	chance 117:23	323:24 327:19
132:4,5 133:10	331:4	90:20	231:9 355:6	329:18 330:7
137:24 142:5	casually 49:3	central 63:18	Chang 321:1	330:17 339:18
144:6,7 149:14	categorization	CEPA 336:18	change 120:13	340:21
149:19 152:5	307:2	certain 23:16	208:14 241:18	chronological
152:11,15,19	causal 198:17	26:11 27:3	354:2 360:4	195:17 250:16
153:3 161:13	220:23 305:19	60:9 78:15,20	changed 174:24	271:23 283:2
161:16 162:11	309:17 310:7	139:6 242:3	187:9 207:21	chronologically
163:11,13	336:3 341:15	333:15	242:5,6,6	282:22
176:7,15,20,20	341:21	certainly 89:17	changes 359:11	chronology 5:16
177:12 185:5,8	causality 219:13	110:20 114:24	361:10	5:17 241:14
187:20 190:24	219:20	149:12 160:20	changing 316:10	245:2,3 262:21
192:13,18	causality,'	161:2 208:22	chapters 60:6,7	281:1 287:6,8
193:6 212:10	216:19	210:15 213:20	60:12	287:11,14,15
214:5 237:12	causation 76:4	225:5 296:3	characterizing	291:17,18,22
238:2 252:12	77:22 78:1,3,6	298:22 331:17	331:22	296:17 298:11
252:13 254:18	98:2,5 102:24	355:13	charming	299:23 302:8
254:20 256:16	115:10,12	certainty 204:4	144:13	303:22 306:7
261:3 280:4	308:11,16,21	348:20 350:4	chart 275:23	347:11
294:11 307:7	309:18 310:1	CERTIFICA...	296:11,18,23	Church 2:14
314:14 322:16	341:23 342:6	358:2	charts 28:9,21	52:24
322:22 323:5,9	cause 66:19	certification	29:4,6	cigarette 80:9
344:3 350:22	78:12,16 79:3	42:18 50:7	check 134:13,23	81:9,13,16
case-control	79:16,23 80:20	322:23 323:3	136:22 137:14	82:16,19 83:10
26:17 27:7,15	81:3,13,22	323:16,17	137:15,17,19	310:15,20
28:12,13 72:12	82:7,21 103:16	358:18	137:22 138:1,6	cigarettes 79:8
72:16 101:19	146:16 196:15	certifications	138:9 228:12	79:12,15,16,23
160:21,24	262:15 311:1	40:9 41:2	292:13	80:3,6,20
202:15 220:22	312:2	49:19	chemical 64:10	310:24
234:8 274:21	caused 98:20	certified 1:16,17	chemicals 86:19	circumstance
294:18 311:17	194:15 203:17	42:5 43:7	120:23	272:24
312:4 338:5	240:2 281:24	358:13,14	chemistry	circumstances
cases 1:8 11:16	312:17 331:16	certify 358:5	203:13	81:5 82:5
12:5 24:2	354:18	361:5	cherry-picking	311:4
47:16 66:2	causes 31:6,11	certifying	293:16,18	cite 248:5
76:22 91:2	195:20 196:14	358:22	chimney 310:6	300:14,19,22
92:8,12 95:9	204:5 219:7	cetera 17:4 26:3	310:12	302:19 305:9
95:11,14,22	226:19 272:3	26:9 185:18,18	choose 175:22	315:15 316:20
96:1 100:18,20	285:2 304:2	247:23	302:7	317:21 318:9
100:23 101:5	307:20 341:4	chair 36:22	chose 45:12	319:6,7,7,8,8,9
101:10 102:17	344:9 348:7,22	99:10 301:4	51:10 111:23	319:10,10,11
104:1,14 105:1	causing 21:12	chairman 45:13	111:24	320:5,6,24
105:4,24 106:2	78:22 81:10	179:2 180:8	Chris 170:23	cited 26:12
106:6,8,13,14	146:17 149:5	challenge 43:9	chronic 6:8	244:15 248:3
127:24 155:22	CBD 327:15,19	187:20 188:9	65:14 66:19	264:21 265:18
240:15 252:17	328:24	188:15	68:23 69:3	278:2 297:22

298:2 300:3,20 305:16 city 3:4 33:23 59:15 claims 97:3,6,7 126:18 146:16 clarify 14:16 248:19 clarity 191:23 243:24 244:3 346:20 class 52:10,11 322:23 323:3 323:16,17 classes 38:5,18 classical 329:3 clear 15:6,20 16:24 17:11 21:5 25:2,3 30:6,16 41:2 80:15 83:15 84:13,22 103:3 104:17 132:18 144:18 184:5 194:13,23 196:9,12 205:13 223:1 229:23 241:15 244:3,7 246:6 249:16 271:20 291:15 299:1 302:11 315:15 317:5 327:17 343:24 clearly 78:8 207:3 241:5 click 260:5 client 92:2 130:5 146:11 clients 86:18 clinical 35:18 38:10 44:11,15 44:18,19 45:3 45:4,21 54:14 54:17 59:4,6 61:5 70:8,14 70:17 113:12	121:10 122:6 178:5,10,21 180:9,21 181:4 183:5,7 185:17 186:16 354:7 clinician 37:1 59:13 72:20 close 230:22 closer 66:15 333:13 clutter 211:4 coal 97:13,15,18 coffee 83:23 cohort 26:17 27:1,7 71:8,11 71:14,23 72:2 77:13,13 161:1 161:3 203:8 220:21 234:8 294:18 338:6 cold 111:12 Colditz 225:4,7 225:12,15 264:16 colleague 126:6 141:2 colleagues 338:4 356:7 college 49:24 50:15 column 277:2,2 278:16 320:16 combination 21:4 combined 162:9 230:24 287:13 come 49:3 52:9 52:13 83:17 98:22 102:22 125:12 245:8 315:12 comes 183:17 263:19 286:13 comfortable 167:18 comfortably 309:24	coming 148:8 276:20 292:15 comment 115:17 196:16 266:17 commented 103:13 commenting 102:7 comments 298:16 commission 361:21 committed 92:4 committee 202:9 committees 19:14,16 common 236:24 290:8 295:22 commonly 90:12,13 communicated 21:15,17 communication 17:1,3,3 210:8 communicatio... 16:19 17:16 20:17,22 213:5 261:1 companies 86:19 138:4 company 4:19 51:23 52:22 84:11 86:8,10 86:13,24 88:7 88:10 89:10 91:19,23 107:4 108:24 125:2 131:3 136:13 138:2,6 141:6 142:12 154:21 169:12 170:7 199:15,15,16 199:17,18 229:24 280:15 comparable	334:16 compared 280:16 comparing 179:22 comparison 270:24 Compensation 126:18 compilation 249:12 304:18 compiled 282:10 compiling 126:17 complainants 97:13 complete 34:11 212:10,13 250:17 completed 34:13 34:23 36:1,2 36:13 212:18 completely 159:6 completeness's 179:8 completion 358:8 complicated 108:11,12 114:2 328:14 component 244:18 comprehensive 124:8 computer 14:8 135:15,16 183:18 186:12 186:13 209:23 210:14 236:10 236:12 concentration 336:21 concepts 40:5 63:17 64:21 concern 15:2 66:6 150:21	202:21 334:7 concerned 35:15 concerning 15:14 21:23 326:15 concerns 15:16 90:2 303:1 conclude 307:19 308:16 310:1 336:17 348:6 concluded 66:17 204:2 215:19 247:6 278:5,13 311:18 312:24 313:23 342:9 357:4 concludes 356:24 conclusion 98:23 306:22 349:21 conclusions 101:12 174:9 219:24 220:4 246:8 276:21 conditions 336:21 conduct 160:20 160:23 161:1 conference 253:6 confidence 278:9 confident 156:3 confirm 180:2 217:12 325:3 conflict 179:1 confounders 202:23 confounding 303:15 confuse 30:17 confused 239:3 confusing 316:1 Congress 43:20 44:1 congressional
--	---	---	---	---

43:19	94:12	165:14,22	55:22 60:14	217:17 221:6
conjecture	consulting 86:15	167:3 198:23	61:10,13,16,20	221:13 222:22
145:22 146:1	87:15 88:4	199:4,4 200:22	61:24 62:10	222:23 223:6,9
282:15	90:19 91:4	200:23	65:5,15 66:9	223:12 225:23
Connecticut	93:20 96:7,10	conversations	66:22 68:24	226:15 227:2
1:15 2:14 9:10	160:9,12	129:22 144:22	69:17 75:16,23	230:2,3 233:9
36:23	consultingship	150:24 151:11	76:1,2 78:22	234:2,11
connection	181:2	151:24 152:2	85:9 90:22	237:17 238:2
16:21 155:21	Cont'd 3:1 5:2	153:20 167:8	95:6,9,10,13	238:24 239:8
156:1	6:2 7:2	168:16,21,23	95:15,16 96:5	241:10 242:10
consider 71:22	contact 20:4	169:3 172:2	96:6,16 97:21	245:17 246:4,8
299:4	21:7 145:7	193:21 201:10	99:14,15	246:12,20
consideration	contacted 22:2	Cook 321:2	100:18 103:6	247:11,12,18
189:1	141:17 143:14	copied 248:22	103:11,16,23	250:24 251:1,6
considerations	145:9 148:13	248:23	105:7 107:11	252:10,18
240:9 271:14	151:13 177:11	copies 13:18	110:1 111:2	262:4,11,22
271:15 341:18	contain 347:14	53:19 143:1,3	113:1 117:7	263:13,14,16
considered 5:14	347:19	143:6 154:16	119:14,19	263:23 264:2
6:15 112:11	contained 346:4	263:8	120:1,24	265:5 268:16
202:24 203:1	346:6	copy 30:4 84:9	121:14 123:14	269:8 272:21
219:16 223:3	containing	85:17 117:21	128:10 129:16	273:5 279:14
223:22 244:24	262:15 281:23	119:8 172:13	130:9,15,23	284:1 291:20
271:2 278:17	327:21	215:3 267:23	132:21,24	292:4 295:5,6
279:5 280:1	content 224:17	corner 85:14	133:11,22	297:12 300:24
296:16 320:15	context 49:3	246:3 259:13	136:6,8,9	301:19 305:11
352:13	122:20 182:13	corners 349:12	138:10 143:23	305:21 306:19
consistent 56:19	240:4 258:20	Corporation	145:3 146:18	313:9 314:4
158:12 185:12	269:24 279:11	96:4,13	152:5 153:19	316:24 324:2,3
214:22 215:21	296:18 314:19	corporations	154:2 156:21	324:19 325:12
303:12 313:16	contexts 94:16	139:19	159:13 160:7	325:13,17
335:20 343:7,8	continue 174:5,7	correct 10:13	160:15,22	326:19,22
consistently	204:24 262:3,7	15:6,10,21	163:24 164:1	330:8,20 333:5
48:18 337:24	continued 187:6	17:6,12,13	169:12 170:4	333:6,24 334:8
constitute	241:18 353:5	20:1,16,20	174:9 176:15	334:9 336:4
336:22,22	continues 174:3	21:8,9 22:4,6,7	177:13 178:7	337:21 338:2
consultant 87:1	contract 89:12	25:5 26:4,10	178:11,15	338:10,18
87:14 88:16	contradict	26:13 27:8,16	184:9 185:5,6	340:16 341:16
89:7 90:7	105:14	27:17,23 29:22	185:9 187:15	341:21 342:2
95:18 106:13	contrast 123:6	31:6 32:4,8,9	187:24 188:10	343:14 344:3
139:2 140:12	contributed	32:13 33:5,12	191:9 192:20	346:5 348:24
141:18 149:14	70:24 71:16	38:7,16 40:14	194:3 196:1,22	351:4,7,21
150:16 158:14	control 358:21	41:3,9 42:6	197:3 198:19	352:14,15,22
176:6,14	conversation	43:7 45:6 48:1	200:5,9 201:13	354:8,15 361:7
177:12	145:17,21	48:24 49:10,11	204:7 207:2	corrected 207:9
consultation	146:2 152:3	49:15,16 50:8	208:5 213:8	corrections
125:3,5	153:12,16,24	50:16,17,20,23	215:13 216:22	359:5,7 361:10
consulted 16:20	164:7 165:1,3	51:2,6,24	217:2,4,9,11	correctly 32:7

218:14 221:2,3 246:15 262:18 263:16 266:20 279:19 328:17 328:18 335:24 336:24 corresponds 287:9 cosmetic 18:8 306:14 cost 35:16 council 13:20 20:1,5 50:4 199:23 200:1 293:2 Council's 14:1 Counsel 9:15 counting 320:2 342:19 country 190:21 County 155:22 184:21 322:20 couple 13:6 14:17 37:15 88:22,24 97:8 112:6 125:22 234:7 course 12:9 19:9 40:7 46:6,14 46:18,19 47:8 47:12,23 48:6 48:9,9,21,22 131:4 203:8 225:18,20 249:1 260:22 308:14 courses 45:20,22 46:2,9,16,22 47:1,5,9,12,18 court 1:1 9:17 12:18 22:10,21 23:7,21 24:12 101:8 104:4,10 116:8 176:12 223:19 253:16 253:17 322:22 359:20	courtroom 94:18 104:20 104:21 105:21 105:23 253:1 courts 253:23 cover 154:21 209:5 Cramer 226:7 226:12,18 227:5,14 228:3 288:3 289:1,6 289:11 301:20 302:5 319:7,9 319:11 320:8 Cramer's 233:24 291:6 302:23 created 77:13 criteria 102:12 190:7 336:17 341:13 343:7 criterion 309:13 critique 102:3 102:11 cropped 302:10 cross-examina... 100:5 crudely 333:7 crystal 244:3 cup 83:24 curated 107:21 current 44:23 45:1,2 123:17 178:10,14 239:21 305:17 336:13 currently 77:5 180:20 curriculum 4:15 32:4 curve 328:13 curved 68:8 curvilinear 68:12 cut 181:21 183:21,24 248:22	CV 32:19 37:7 37:14 38:6 44:9 46:2,8 49:18 62:3 73:5 109:16,24 178:4,4 179:20 179:23 180:1 181:10 187:16 CVs 138:19 <hr/> D <hr/> D 4:2 D.A.B.T 207:1 D.C 2:9,19 156:24 158:23 223:8 DABT 1:13 4:5 5:7,22 6:7 9:21 358:8 361:16 daily 68:21 damn 267:8 Dan 3:15 9:3 dancing 186:9 danger 336:22 data 27:6 28:11 28:14,21 29:4 29:6,18 68:9 101:15 102:13 126:21 127:1 161:13,14 257:14 293:24 294:6,8,12,17 294:21 318:21 318:22 319:24 334:14 336:2 database 279:9 databases 64:7 date 1:15 9:6 119:17 141:20 143:11 187:3 192:6,8,9 196:17 207:9 208:6 214:18 232:10 243:9 273:20 359:9 361:16 dated 163:24	183:12 185:11 186:18 208:13 209:18 213:11 220:8 235:17 235:18 243:1 247:4,17 248:7 295:8 350:24 358:15 dates 100:24 163:22 164:18 166:4,9 214:3 243:24 dating 326:16 Daubert 23:3,6 23:11,15 24:4 187:20 188:14 189:8,11 190:1 190:5 day 12:9 26:22 97:10 109:6 134:3,3 171:21 211:1,1 232:13 268:2 361:20 day-to-day 174:3,4 days 14:11 167:15 171:19 267:7 295:4 359:16 deal 25:14 97:16 232:5,22 234:23 dealing 45:23 123:17 148:9 dealt 60:8 105:17 decades 326:22 330:7 December 243:10 250:11 252:3 decide 124:12 decided 109:8 297:17 deciding 22:11 110:18 decision 110:21	189:8,12 190:1 190:5 deemed 359:19 defendant 2:20 3:5,10 13:24 88:11 defendants 16:21 23:14 261:2 defense 90:12 92:5 98:12 100:15 326:9 define 25:10 72:6 182:3 249:15,17 309:12 defined 78:8 definite 310:8 degree 32:7 33:7 33:10 39:8 40:7 42:4 204:4 348:19 degrees 39:19 delete 135:21 136:2,5 210:18 210:18,21 211:12 deleted 135:24 210:16 delivered 232:9 demonstrate 308:11 demonstrated 303:12 Demonstrative 5:9 6:12 department 36:23 37:10 45:14 333:14 depend 167:1,4 dependent 80:24 depending 221:9,11 311:3 depends 80:2 82:5,11 174:14 309:13
--	---	---	---	--

deponent 9:13 361:2	1:21	developed 108:14	director 36:24 47:9 48:9	83:19 85:1,4 94:21 116:18
deposed 88:21 94:1 104:5,11 104:14 105:1 106:7,22 163:10 164:8 164:11,14 185:4 192:17 323:5	deriving 333:18 describe 65:22 85:5 233:21 described 36:8 36:11 58:24 74:9 184:16 239:16 240:8 description 4:13 5:5 6:5 7:5 85:20 121:4 134:5	development 220:19 328:14 devoted 49:2 diabetes 355:24 diagnosed 289:15 diagnosis 65:13 340:3,15 diagnostic 35:17 diaphysis 69:13 die 289:24 291:8 291:8 diesel 112:8 121:19 difference 44:18 47:7 102:6 252:20 different 17:24 26:2 35:16 37:15 39:24 49:9 68:6 74:10 197:6,21 203:3 221:13 226:20 270:8 290:15 292:5,6 308:2 309:19 318:19 325:7 differentiate 68:11 128:3 266:8 difficult 113:18 329:15 digital 53:18 210:7 diligence 141:14 dimension 291:2 dining 87:19,21 diploma 40:22 diplomat 49:24 direct 358:21 Direction 8:5 directly 22:10 54:20 75:1 78:23 138:9 268:15	disagreeing 130:16 284:11 discovered 97:10,12 202:13 discuss 17:9 165:22 219:4 discussed 63:2 discusses 17:19 discussion 145:6 273:4,5,7 296:7 disease 6:9 65:15 66:20 68:23,24 69:4 75:20 78:12,16 78:17,22 79:4 81:10 295:21 307:21 324:1 326:16 327:16 327:18,20 329:1,4,9,18 329:23 330:8 330:18 331:16 diseases 122:8 disparities 64:2 dispose 211:3 disposed 69:16 dispute 180:8 disregarded 299:16 distinction 47:4 48:2 distribution 67:14,17 68:8 DISTRICT 1:1 1:2 doctor 32:12 84:17 91:18 92:13 117:20 190:21 331:13 332:12 356:16 doctoral 42:4 document 1:8 13:8,24 31:16	143:21 154:10 158:7 172:8 177:23 205:5 229:12 230:10 245:12 255:19 256:10 263:4 274:15 278:21 281:2 286:21 292:16,21 314:22 324:13 335:3 350:13 350:13 352:8 355:1 documented 69:11 documents 8:8 15:14 16:7 17:15 18:10 24:17 94:15 199:15,15,16 199:17,19 200:4,13 263:20,21 doing 23:17 35:8 37:18 38:23 39:2,5 45:16 60:18 87:16 90:18 102:6 128:5 140:16 160:13 182:13 200:19 203:21 302:12 359:8 dollar 133:6 136:17 dose 67:9 68:5 327:11 328:11 331:18 dose-effect 75:14 dose-response 6:9 64:19 65:1 65:3,9 66:17 66:21 67:2,6 67:10,13,21 68:18 220:15
depositions 106:11 161:24 230:20 252:19 253:5 283:17 deps@golkow...	determining 175:7 190:7 Detroit 126:7 129:4 132:6 141:2 develop 86:20			

288:9 323:20 324:2 328:13 329:3,11 331:19,23 double 320:1 doubt 185:13 268:9 295:20 302:24 307:14 307:22 308:22 309:7 310:2 311:1 350:5 354:10,11 doubts 271:21 dozen 234:7 dozens 268:14 268:14 269:19 269:19 270:13 270:14 283:23 283:23 290:9,9 294:17 Dr 6:14 10:4 32:11 41:12,15 42:10,13,17,23 43:5,12,15,20 43:24 55:12,24 56:7 57:10 121:7 157:2 161:24 162:2,3 162:4 205:15 205:19 224:5 224:13,19,21 224:22 225:1,4 225:7,10,12,15 226:7,12,18 227:5 228:3 229:1 264:16 268:11 270:9 270:18 284:19 288:3 289:1,6 289:11 291:6 301:4,18 302:23 346:22 347:7,12,17,22 352:12 draft 6:10 212:2 212:5,12 336:15	drafted 157:4 351:21 drafts 173:24 210:19,19,22 212:2 drugs 120:24 due 141:14 329:2 duly 9:22 358:5 dust 16:16 66:9 66:12,19 Dynamite 244:4 E E 4:2,10 5:2 6:2 7:2 360:1 e-mail 17:4 119:5 210:6 e-mails 211:8 e.g 220:15,16,21 220:23 earlier 95:6 117:3 134:10 144:5 156:9 178:20 180:19 181:16,22 184:2,6,10 185:22,23 186:14 191:4 197:23 198:1 207:20 212:11 214:4 217:14 233:3 236:3,6 239:16 240:11 240:18 241:19 250:20 267:7 268:12 274:19 283:21 301:12 305:3 314:9 323:19 326:13 350:2 353:1 earliest 143:10 328:24 early 90:12,16 241:8 328:22 earth 79:3 ease 191:1	252:23 316:12 easier 12:18 77:6 203:9 235:2 292:7 EASTERN 1:2 easy 14:18 economic 33:10 economics 33:8 35:8,9 36:19 economist 34:22 35:2,7 edit 119:13 edited 208:12 editing 213:17 editor 21:22 editorial 20:23 21:15 57:23 58:5,8,10 243:13 editors 20:23 edits 120:6 208:13 educational 147:9 effect 75:19 92:18 336:3 effected 68:22 effectiveness 17:22 18:5 35:16 effects 60:13 74:21 75:11 effort 261:3 eight 11:11,16 37:1,4 59:17 95:11 114:14 195:9 either 26:16 93:9,10 109:6 151:17 167:8 186:11,13 208:1 elemental 74:22 ELLIS 3:7 Elmo 142:24 157:11 255:9 255:16	else's 102:8 embarrassed 107:17 embarrassment 109:21 embedded 265:17 embrace 122:20 emergency 36:18,22 37:18 61:13 71:18 90:20 91:7 emeritus 99:10 empathy 34:7 employed 341:13 employees 17:16 20:22 53:2,4 employment 35:21,23 encompassing 282:19 ended 89:16 ends 45:5 enforcement 89:12 engaged 129:12 202:17 engagement 154:1 England 310:6 entail 126:21 enter 336:20 entered 344:21 entering 336:19 entire 293:24 entities 3:6 17:21 entitled 62:14 213:4 287:1,5 entry 143:9 environment 336:20 environmental 4:18 19:22 50:2 51:4 58:7 58:9,15 62:18	63:2 108:16 113:1,5 121:9 121:11 122:21 123:5 124:19 127:19 147:17 179:12 325:12 epidemiological 15:24 51:1 60:8 62:16 63:17 64:5,6 64:11 97:24 113:16 115:11 220:20 299:11 305:18 306:12 307:17 308:15 334:14 341:14 epidemiologic... 39:5 epidemiologist 32:20,23 38:15 38:20 39:20 40:1 41:19 44:12 97:21 127:21,23 128:5,7,13,17 129:9 189:3 307:19 308:20 epidemiologists 27:20 50:16 51:5 230:19,24 308:10 epidemiology 28:7 32:8,17 32:24 38:2,5,8 38:11 39:9,12 39:15 40:5,7 40:10,17,23 41:3,8 42:5,19 43:6,7 44:12 44:16 45:5,9 45:18,23 47:1 48:6,10,16 50:8,22 54:6 54:10,14,18,23 55:3,8,18 56:9 56:18 57:12 58:1,16 59:3
--	--	---	--	---

60:2,6,10	68:12 98:19	267:20 297:4	311:7 314:21	expert's 190:8
62:12,21 63:13	115:11 221:5	349:3	314:23 315:13	expertise 47:17
64:21 128:1	221:20 234:4,6	Excused 357:3	316:8,9,19	experts 17:5
178:6,22	247:6 271:15	exhaust 121:20	320:10 322:12	22:23 23:16,18
180:10,21	271:16 272:6	exhaustively	324:6,8,14	138:14,23
181:5 183:6,8	272:10,11	229:4	332:13,17	161:10 162:8
185:17 186:17	302:13,16	exhibit 13:9,12	335:2,4 344:18	223:18 230:18
268:16 269:7	304:21 305:18	14:15 31:15,17	345:3,4,5,6,7,9	262:14 298:16
270:10,15	306:13 308:15	32:3 83:16,20	345:15,18,19	304:22
equally 310:15	309:20,21	84:4,6,19	345:22 346:1,4	expires 361:21
equate 309:6	341:4,14,19	94:20,22 99:13	346:6,7,21	explain 22:15
errata 359:6,9	349:22	107:3 116:17	347:1,3,6,10	155:13
359:12,15	evolution	116:19 117:6	347:11,14,16	explained
361:12	115:18	117:21 142:16	347:19,21	178:22 194:21
error 92:3	exactly 233:21	142:16 143:9	348:1,3 352:3	219:2,3 303:14
ESQ 2:3,3,8,13	241:11 312:23	154:9,11	352:9 354:24	explaining
2:18 3:3,8	examination	155:10 158:6,8	355:2	177:17
essentially 76:11	10:1 217:8	172:7,9 173:7	exhibits 206:3	explanation
115:18 126:18	examined 9:23	183:14 204:17	344:22	80:12 213:11
133:8 154:19	216:20	205:6,13,17,20	exist 40:14	253:4
313:15	example 41:12	205:21,24	existed 261:2	exposed 66:9,11
establish 305:19	60:17 68:17	218:24 220:8	existing 195:24	68:20 75:4,9
established	75:4,18 77:3	229:2,11,13	expected 164:15	76:7,10,15,17
294:24 295:1	81:7,10,12	230:9,11	286:16	76:17,23 77:5
348:7,21	120:6 123:2	231:13 244:23	experience 38:9	77:19 87:19
et 17:4 26:3,9	131:13 139:12	245:11,13	experimental	327:21 328:16
185:18,18	141:4 166:13	248:15,15	305:17	331:1
247:23	240:14,20	255:11,13,13	experimentati...	exposure 19:18
evaluate 97:17	242:17 246:22	255:17,20	310:9	19:20 60:23
195:18 196:23	264:9 265:24	263:3,5,19	experiments	61:20 65:4,12
239:23 271:24	277:6 284:12	266:20 267:12	24:18	67:16 68:17
evaluated 47:13	288:1 293:3	274:13,14,14	expert 5:6,12	74:21,23 75:12
76:9,23,24	295:2 297:17	274:16 275:1	7:7 11:22	75:15,19 77:15
99:1	299:16 300:3	275:21 276:24	16:20 19:24	77:16 78:11,12
evaluating	353:1	278:20,22	23:9 24:10	78:15,22 79:3
74:13 341:19	examples 87:14	280:23 281:3	27:19 128:10	81:7,10 104:1
evening 142:21	91:9	284:13,14,16	139:14,18	104:7 121:12
event 86:21	Exchanged	285:8,14,17,19	141:8 160:2	247:8 326:15
Eventually	268:22	286:15,20,22	193:2,24 194:9	328:11 329:3,9
134:23	exclude 23:15	287:1,3,5,15	223:3,7,17	330:1,19 331:3
everybody	exclusive 218:11	287:15,20,21	224:7,10	331:16 334:5
143:1 144:10	247:22	287:23 288:2	235:15 238:1	335:22 336:14
154:18 155:5	exclusively	291:16,18	263:11 265:8	338:2 343:11
155:12 156:13	60:16	292:9,17 296:9	283:24 289:1,4	exposure-rela...
352:7	excuse 57:16	296:10 301:22	314:15 325:16	97:23
evidence 56:8,18	82:17 189:23	301:23,24	326:3 345:23	exposures 60:9
57:3,11 67:20	211:17 235:22	306:2,2,3,4	352:18,18	97:7,9 121:11

121:19,24 147:17 312:1 331:10 express 31:4 345:8,16 346:2 346:22 347:5,7 347:9,13,17,22 expressed 348:1 349:12 expression 258:19 extended 174:19 extensive 121:4 238:20,21 extra 84:9 extrapolated 27:3 extrapolation 220:17	factually 134:20 faculty 38:24 122:23 179:10 fail 359:18 failed 270:3 fair 58:12 61:2 192:4 214:13 344:23 345:13 fairly 298:5 false 140:8 familiar 18:4,7 56:6,13 57:9 79:7 84:20 255:3 256:3 257:7 290:12 290:21,23,24 315:3 325:6 355:13 Fantastic 327:6 far 126:3 233:4 260:2 fashion 139:4 210:10 225:16 father 91:17 fax 1:21 FDA 333:8 fear 259:7 February 101:7 159:12 163:24 171:5,8 183:13 184:8 185:20 186:19 192:22 217:16 220:9 229:10 231:13 234:18 241:9 350:24 351:20 353:20,24 federal 223:4 fee 129:15 130:2 150:14 201:12 feel 187:10,12 218:2,7 feeling 187:11 fees 129:18 153:1 fellow 70:15 93:18 144:13	fellowships 49:23 felt 147:11 Fields 74:4 fifth 113:8,10 296:1 figure 77:14 136:17 186:7 file 67:16 117:17 187:7 209:23 228:22 255:5 332:9 356:14 filed 119:6 files 210:17 filing 23:15 fill 83:23 final 215:17,18 241:17 303:9 finances 153:13 153:17 find 14:19 53:23 55:17 119:6 141:5 211:1 280:17 290:9 301:6 302:12 302:13,16 304:20 305:5 312:19 332:3 findings 312:5 313:17 fine 130:1 156:18 157:6 205:3 262:9 318:11 finish 12:20,21 36:4 82:20 176:9 firm 88:6 89:15 99:18 first 9:22 18:3 32:21 38:8,13 62:13 65:11 85:7 86:8,18 86:21 87:12,17 88:16 96:3 101:10 102:21 106:16 107:7	113:2 125:24 129:23 141:16 142:12,21 143:8,13,24 145:6 153:11 154:15 155:7 155:17,20 163:9,9 165:2 171:15 177:11 179:4,15 181:1 182:15 183:4,9 184:22 185:15 186:2 187:9 192:24 193:12 193:13,20 198:5 207:8 220:9 232:6,8 233:24 246:10 259:18 260:6 262:24 263:17 277:1,2 280:9 280:12 292:1 296:24 327:17 331:2,7 355:18 fit 147:18 five 73:13 114:14 126:8,9 129:22 130:12 130:15 132:2 352:19 356:14 five-minute 117:10 fix 192:8 flaws 99:6 floor 2:14 51:18 Florida 105:17 fluorescent 66:7 66:13 327:20 FLW 1:6 fly 311:11 focused 58:20 58:22 121:17 folks 21:15 follow 67:16 180:17 182:5 344:20 follow-up 206:2	followed 214:1 231:20 following 34:18 119:12 146:11 220:18 250:15 270:2 follows 9:23 67:14 footer 207:8,13 footnote 220:10 220:13 222:10 222:18 289:12 290:19 foregoing 358:18 361:6 Forestry 108:16 Forgive 115:8 243:12 forgot 208:14 form 28:19 30:1 139:4 210:7 212:3 225:16 341:18 361:10 formal 114:19 format 53:18 325:1,8,8 formats 299:11 former 85:10 formerly 84:13 86:6 96:15 forth 103:1 108:23 114:19 191:2 forward 237:21 found 36:14 66:21 74:7 294:13 304:24 305:6 349:19 353:2 Foundation 46:21 Foundations 46:20 four 11:12 12:1 12:3 53:5,6 73:13 96:1 98:6 100:23,24
F				
F 2:8,18 facility 37:19 fact 16:1 29:16 41:6 66:18 68:15 117:2,6 143:8 156:7 161:11,11 181:5 183:6 220:2 222:7 226:11 253:21 254:5 256:14 284:1 289:8,13 300:1 314:14 323:19,23 325:4 327:3 329:24 330:17 352:3 factor 340:1 factories 66:8 factors 64:4 81:1 202:23 216:24 217:1 219:10 355:24 factory 65:24 66:13 factual 194:14				

102:20 114:14 134:6 189:7,11 189:13,21,24 190:4 231:3 349:12 352:19 four-page 292:21 fourth 3:8 113:8 113:9 fraction 161:15 framework 341:19 frankly 122:14 free 218:2,7 frequency 242:4 frequently 339:21 340:24 341:3 Freud 112:21 Friday 14:8,10 friend 126:7 129:3 132:5 268:12 friends 55:14,16 front 32:2 84:3 84:18 89:4 189:3 215:9,11 215:12 253:1 275:21 316:13 316:16 fulfilling 239:21 full 46:14,18 187:15 248:23 355:18 full-time 37:24 59:13 fully 12:22 funded 33:2 34:21 Funny 292:6 further 80:12 336:2 future 97:3,6,7 164:14	gastroenterol... 34:21 Gates 240:22 general 23:10 102:24 123:9 334:15 generally 16:13 23:6,12 60:16 60:20 87:5,23 96:20 111:12 124:12 152:12 158:12 167:13 184:16 211:10 232:8 340:16 generate 237:2 241:9 generated 159:16 171:7 Generically 116:13 generosity 108:2 genetically 69:6 69:9,15 genital 204:5 303:18 311:24 338:14 gentleman 91:12 117:3 GEREL 2:8 germane 177:19 282:2 Gertig 240:23 getting 39:18 118:18 122:13 140:18 150:11 324:11 give 30:3 83:22 87:14 91:9 103:15 113:19 127:13 143:4 150:6 177:23 187:16 209:15 244:2,14,17 248:8 273:20 given 10:24 11:9 46:9 47:4,4 48:2 95:17	100:16 125:16 249:2 265:7 267:23 334:3 358:6 361:8 giving 99:24 108:1 152:14 187:3 304:3 glasses 316:10 go 14:15 17:14 25:21,24 26:15 26:21 33:22 39:17,19 73:5 83:17 102:12 107:2 108:22 111:23 117:8 119:2 122:15 123:22 124:14 132:19 133:21 146:8 150:13 155:1 159:9,18 161:9 175:14 177:18 179:6 193:9 204:8 206:11 209:10 209:20 210:2 212:14,15 220:7 223:1 228:12 229:3 231:12 233:6 240:13,19 246:15 251:10 254:13 259:9 259:11 261:23 261:24 262:1 263:1 268:9 288:2 311:13 317:7 318:7 322:11 326:12 328:6 337:2,18 338:21 341:6 342:16 343:21 344:24 348:17 349:4,6 351:12 354:10 355:14 355:17 goal 111:3 Godard 321:2	goes 17:23 26:22 44:23 62:9 124:13 131:15 172:17,19,22 198:18 229:10 259:6 287:10 going 10:8 22:22 25:21,24 26:20 26:21 31:20 52:11 60:17 70:14,18 83:12 83:13 116:24 117:12,16 119:10,12 136:10 143:15 144:20 154:4 157:23 163:10 164:3,8,11,14 175:7 178:4 187:19 191:13 192:5 193:1 194:2 197:22 204:19,22 216:12 218:3 218:11 228:15 228:21 231:7 241:23 244:2 269:3 296:6 311:6 332:4,8 332:12 343:23 348:2 349:8 352:1 355:5 356:6,9,13 357:1 Gold 2:13 Golkow 1:20 9:5 Golomb 2:2,3 4:6 10:3,8 13:11 27:12 28:4,23 30:7 31:13,19,24 32:1 40:24 42:1 44:8 46:17 48:11 50:13 56:16 57:1,21 58:21 61:1 63:7	64:24 66:4 67:3,11,23 68:14 69:14,20 70:4 72:10 75:22 78:18 79:1,22 80:4 80:16 81:2,20 82:13 83:3,8 84:7,16 85:2 85:18 94:8,24 102:15 103:22 110:9 111:20 114:23 115:15 116:2,6,15 117:4,8,19 128:21 134:17 137:4 138:17 140:4,21 141:15 144:1 146:7 147:1 149:3,22 150:8 150:22 151:3 152:8,20 153:8 154:13 155:1,4 155:9 156:17 157:6,7,10,12 157:22 158:1 158:10,19,24 159:8 160:6,19 161:21 162:14 162:22 163:2,6 163:15,18 170:13,17,21 170:24 171:6 172:12,21 173:5,10 176:22 179:7 179:13,18,24 180:5,23 181:13 183:1 183:19 184:3 184:14 185:3 186:24 188:2,7 188:16,21 189:10,19,23 190:2,22 191:14 193:18
G				
game 202:20				

194:7,16 196:7	281:6,12 283:5	144:15 188:6	100:7 291:16	53:1 61:7
196:21 197:7	283:13 284:7	191:15 228:9	315:4	167:14 171:20
197:17 198:10	284:16,17	283:3 332:2	guy 56:5 91:18	214:20
199:2,24 200:2	285:16,23	good-looking	91:22 147:11	hazard 87:18
200:10,20	286:24 287:4	195:4	195:4	hazardous 60:13
201:17,22	287:24 288:20	gotten 137:22		60:14
204:12,18	289:22 290:6	198:23 206:3	H	head 241:6
205:2,8,22	290:16,22	government	H 4:10 5:2 6:2	health 4:18
206:6,18	291:14 292:19	17:17	7:2	18:11 34:21
208:18,23	294:15,22	Grade 354:6	half 52:19	35:1,9,10
209:8,24 210:5	296:21 297:15	graduate 35:7	167:15 204:19	44:13 46:23
211:16,20,24	298:7 299:12	36:15 38:5,19	215:23 217:24	47:2 52:18
212:19 213:6,9	300:7,18	graduated 33:5	hand 244:6	58:7,10,15,23
213:15,22	301:14 303:20	33:15	355:5	60:21 62:18
215:4,6 218:2	304:6 305:8	Grand 3:3	handed 117:21	63:2 88:9
218:10,15	306:3,6,10	granulomatous	handful 170:22	99:11 113:1,5
219:17 220:1	307:4,15 308:3	327:16	handing 158:5	123:7,10 178:6
221:10,16	308:6 309:4,22	Gray 1:16 9:18	215:4 314:7	180:22 185:18
222:6,15	310:10,22	358:12	handwriting	304:5 328:15
223:13 226:4	311:5,12 313:2	great 25:14	158:3 173:9	329:16 333:4,7
226:23 227:12	313:13 314:2,8	63:18 112:19	339:5	333:14,17,23
228:10,24	315:1 316:2	232:5,22	handwritten	334:7,11,24
229:15 230:7	317:6 318:2,4	234:23 346:8	236:9 339:1	336:13,23
230:13 231:11	318:14,23	greater 26:22	happen 24:15	337:3
232:15 233:1,8	319:5,19 320:3	296:18	164:21 177:9	healthcare
234:15 235:3	320:12,17	Green 2:8 10:16	208:19 218:12	334:6
235:12 236:2	321:8,19	11:6 144:6,9	happened 71:24	hear 12:22
237:6,20 238:8	322:10,24	144:11 169:20	150:12 213:21	22:22 129:6
239:7 242:14	323:14 324:10	170:19 214:9	happens 134:12	211:21 250:6
243:2,18	324:16 326:11	305:2 321:2	134:20 136:19	260:3 281:8,14
245:10,15,24	327:2 330:2,13	Greenback	happy 116:23	heard 20:7,9
252:8 254:1	331:11,24	144:4	289:21 303:5	69:21,22 78:5
255:1,8,10	332:11,21	grimaced 142:6	hard 53:19	78:7,8 83:9
256:1,24	333:1,16 335:2	Gross 298:9	114:8 128:2	211:20 258:17
257:11,21	335:6 337:12	319:10	hardcopy	hearing 23:3,7
258:5,14 260:1	338:17 339:4,7	group 2:12 4:16	142:22 210:7	23:11 112:7
260:15,23	340:10 342:11	37:22 124:23	Hardy 3:2 328:2	113:7
261:9,16,22	343:1,4 344:14	125:1,7,16,21	328:4	hearings 100:21
263:7,10 264:4	344:23 345:1	125:24 126:6	Hardy's 65:23	heavily 75:4
264:11 265:20	348:10,13,16	126:11 127:3	Harlow 298:8	HEGARTY 3:3
266:18 268:24	349:10,24	142:10 275:11	319:10 320:7	28:17 29:24
270:6 271:10	350:8,16 351:3	275:15 299:21	harm 336:12	31:7 41:21
272:7,17,20	351:15 352:11	grouped 275:16	harmed 94:4	44:4 56:10,21
274:4,11,18	355:4 356:4,16	groups 49:9	Harriet 65:22	57:15 63:6,15
275:19 276:7	356:21	68:6 76:12,20	Haven 1:14,15	68:3 69:1
276:17 278:15	good 10:4,5	guards 94:6	2:14 9:9 36:23	80:13 93:24
279:3 280:5,22	96:19 105:19	guess 18:16	37:12 52:24	103:18 110:4

111:8 115:20	held 1:14 9:9	historically 76:7	human 333:14	334:8 338:5
134:14 136:23	36:24 101:6	history 105:13	334:7,13	identifies 11:15
138:15 139:23	141:13	hit 259:16	335:18 336:12	11:18 37:14
140:14 141:9	hello 168:10	Hogans 264:17	336:23 337:16	38:7 260:9
146:19 148:24	help 63:10	hold 57:22	humans 341:20	identify 49:22
149:16 150:3	126:11 127:8,9	homepage 85:8	Huncharek	130:21 183:5
150:17 160:4	127:10 266:4	259:12	297:18,23	246:17 252:3
161:17 162:13	303:7 341:20	Honik 2:2	321:3	identifying
162:17 172:17	helps 143:12	105:16	Hygiene 58:10	186:15
176:17 182:22	Henderson	hopefully	hypothesized	idiot 187:10
183:16 184:13	233:13,15,17	247:13	339:22 341:1,2	II-B 307:1
186:22 187:22	234:5	Hopkins 45:2	hypothetical	imagine 104:9
188:5,11 189:4	hesitated 168:4	178:16,17	258:23 259:1,2	187:15 193:7
189:16 190:18	hierarchy 56:7	hospital 33:20	259:3 260:4	214:9
193:17 194:11	56:18 57:3,10	37:11 99:3		Imerys 199:17
196:19 197:14	221:5,19	host 107:10	I	immediately
198:20 199:22	271:15 272:11	hosted 84:14	IARC 18:22	171:17
200:7,17	298:24 299:5	86:6 110:18	19:2,5,7 148:3	immunologica...
201:14 208:16	299:10	hosting 107:13	148:5,14,21	327:15
213:2 217:18	high 55:23 76:8	107:19 108:9	149:9 202:5,9	imperative
219:1 223:10	76:15 141:13	108:10	203:5 240:23	359:14
225:24 226:17	354:6	Hotel 1:14	298:21,23	implementation
243:11 253:19	High-Grade	214:21	299:21 300:23	331:2
254:21 256:22	6:20	Houghton	301:5,9 307:1	Implications
257:9,17 258:1	higher 329:23	240:22	307:7 308:1	62:15
258:10 259:22	330:1	hour 131:16	312:24 349:21	implicitly
260:13,20	highlights	134:5 168:24	idea 23:13	134:19
261:5,13,20	299:22	169:2 204:19	identification	imply 340:16,18
263:24 268:17	highly 56:3	hourly 131:9,12	13:9 31:17	import 288:16
269:21 271:18	Hill 101:23	131:23 132:1,3	83:20 94:22	325:23
273:18 275:8	102:1,4,7,8	133:3,3,17,18	116:19 142:15	importance
276:5,12 282:8	103:1,5,8,10	136:15,16	154:11 158:8	296:5
283:11 289:17	113:23 114:5,6	140:12	172:9 205:6	important 99:6
290:3,13	114:10,18,20	hours 130:8,21	229:13 230:11	118:24 295:21
291:11 294:10	115:14 161:6,8	131:6,10,22	245:13 255:20	295:24 296:1
296:19 297:14	161:12 162:9	132:24 133:4,6	263:5 274:16	298:11,13,14
297:20 299:7	197:10 222:2,5	133:17 134:6,6	278:22 281:3	298:21
300:9 303:23	222:8,14,17	136:14 169:1	286:22 292:17	importantly
304:15 306:21	341:13 342:14	171:12 175:6	314:23 324:14	327:16
307:23 308:24	343:7	177:24 178:1,1	335:4 352:9	impression
309:8 310:18	Hill's 220:24	214:14 215:24	355:2	110:1
319:18 323:13	222:11 285:1	HTML 325:8	identified 12:4	in-person
326:5 329:12	hired 109:2	huge 235:14	25:23 26:1,8	167:20
330:22 333:9	Hispanic 62:15	hugely 330:1	128:12 129:7	incidence
338:16 340:6	histology 233:19	Hugger 98:7,10	133:4 181:3	113:14
342:4 349:16	historical 97:6	98:20 100:18	200:14 257:23	include 17:21
350:7 351:2,8	121:22	100:20 102:17	290:10 292:1	29:7 41:11

130:7 160:13 293:15 297:17 297:18 302:7 303:21 312:7 320:11,13,18 320:19 335:1 344:5 352:17 353:8 354:18 355:24 included 112:12 205:21 248:21 249:4 261:11 261:18 267:7 279:23 294:1 298:6,8 301:17 333:20 354:5 354:14 includes 133:16 205:14,17 220:17 246:8 251:11 275:24 279:13 297:8 344:2 including 49:24 97:6 131:20 173:3,6 178:1 339:24 inclusive 112:18 incomplete 288:10 incorrect 170:12 increase 312:3 increased 247:8 273:14 275:5 276:9 278:9 297:10 313:18 315:17 316:22 319:15 338:13 independent 60:19 141:5 290:5 INDEX 8:2 indicate 98:20 112:4 124:17 134:7 264:20 273:19 335:20 indicated 41:6	43:1 134:10 150:20 161:22 233:2 299:2 indicates 11:20 131:13 134:3 209:1 214:18 282:1 325:14 indications 339:23 indicative 336:3 indirectly 22:11 71:15 250:14 individual 29:15 92:19 individuals 131:21 industrial 18:14 61:16 121:9 industry 126:19 infections 98:21 infer 115:12 inference 220:23 311:24 341:22 Inferred 293:4 inferring 115:10 342:6 inflammation 300:12 306:17 339:23 341:5 inflammatory 339:19 340:1 340:22 influenced 240:10 inform 86:21 information 119:3 135:10 210:17 309:14 325:15 327:4 336:10,15 informational 86:20 infrastructure 127:2 Ingredient 18:8 initially 177:4	203:9 injured 92:19 93:22 injury 92:9,11 92:16 inmate 94:3 inner 59:15 inside 104:21 Institute 19:12 243:15 247:5 247:16 251:4 251:18 295:3,8 instruct 136:1 instructing 213:7 instruction 136:6 177:7 instructions 119:5,12 359:1 insufficient 305:18 insurance 138:1 138:3,6 intend 353:23 intended 351:6 intent 312:14 intention 351:17 intentionally 211:14,18,23 interest 58:14 60:20 121:8 147:18 interested 61:22 126:13 127:8 146:11,12 147:3,5,16 150:11 151:14 interesting 111:14,18 140:1 206:13 272:23 300:13 interests 58:13 111:7 112:5,15 120:8,13,18,23 interface 59:3 interim 238:11 internal 34:10	50:3 59:19 61:9 200:4,13 International 18:18 50:22 51:4 54:10 internet 108:2 internist 32:13 32:14 59:7 71:17 127:17 interpose 179:5 interpret 64:14 interpretation 64:22 126:20 220:20 240:10 interrupt 186:6 interval 278:10 intrigued 203:12 introduced 10:6 129:3,5,23 132:6 141:12 introduction 126:15 129:7 introductory 201:9 investigator 70:7 71:2,8 72:12 invited 38:23 125:12 invoice 6:13 143:24 144:3 280:16 invoices 4:16 6:17 7:8 130:4 130:6 132:15 132:23 136:12 142:9,10,11,14 142:19 144:7 154:19 155:6 230:17 280:16 involve 126:23 involved 24:9 61:3 72:21 74:5 86:24 89:18 93:4,6,7 110:20 136:21	149:18 150:11 152:18,23 176:19 177:4 184:17 193:14 225:13,15 322:21 involving 106:23 irrelevancies 108:13 irrelevant 272:18 irrespective 57:24 irritation 339:18 340:21 Isser 2:3 230:15 issue 61:4 63:12 148:20 154:7 162:21 177:5 198:16 199:10 202:21 304:5 issues 89:11,12 89:13,13 121:18 217:21 353:17 <hr/> J <hr/> J 3:8 J&J 156:14 Jack 41:12 JAMES 2:8 January 33:24 94:2,9 176:2 185:11 192:14 198:2,12 201:18 204:2 206:7,10 207:2 207:18 208:10 209:18,19 210:11 213:12 213:24 234:10 234:18 236:20 237:9,21 Jersey 1:2 155:21 156:23 157:3 158:23
--	---	--	--	---

184:21 223:15 223:18 241:13 Jgreen@ashc... 2:10 JNCI 19:13 job 36:17,24 153:2 197:24 201:11 jobs 37:15 76:21 Johns 45:1 178:16,17 Johnson 1:4,5 3:5,6 33:2 199:16,17 join 38:24 Jonathan 1:13 4:5,19,20 5:6 5:22 6:6 9:13 9:21 14:3 51:22 52:22 84:11 86:8,9 86:13,24 107:3 110:14 131:3,7 132:16 136:13 142:11 154:20 169:11 170:7 207:1 229:24 346:22 347:7 347:12,17,22 358:8 361:16 journal 21:1 26:2 54:6,10 54:14 55:3 58:2,6,9 62:8 243:14 325:11 journals 21:16 51:8 53:15 247:23 266:22 judge's 188:24 judgment 92:4 jumps 119:20 June 10:20 95:18,22 144:4 169:20 192:18 193:5 214:2,19 216:15 217:13 jury 23:9 189:3	253:2 <hr/> K K 2:9 K-U-R-T-A 321:5 kaleidoscopic 47:19 Kansas 3:4 keep 29:11 31:20 116:24 135:10,13,14 202:19 210:19 236:1,9 342:15 keeping 174:22 Ken 55:12 271:6 kept 236:4 key 279:10 kicking 117:1 kidding 109:4 kind 17:2 19:16 53:22 93:5 114:19 125:5 141:6 144:19 256:13 318:19 kinds 20:18 60:9 97:8 309:19 knew 66:10 77:17,18 230:6 know 10:11 12:11,14 14:4 16:16 18:11,14 18:17 19:4,14 20:10 23:2 24:4,7 26:18 27:13 28:1,5 41:14 42:3,22 43:4,9,11,14 55:12 56:12 57:2 65:21 66:10 67:1,4,5 67:9,21 68:16 71:20 77:19,24 78:4 79:12 80:8 84:23 88:19 89:15 95:21 97:14	98:4,15,17 101:22 104:13 106:23 111:10 112:18 120:11 120:20,21 122:14,23,24 125:4 126:3 130:19 134:11 134:13,19,19 134:22 135:20 136:19,22 137:1,8 138:3 138:11,21,24 139:21 140:3 140:22 141:1 141:20 143:5,8 144:21 148:8 156:2 157:1,2 164:24 165:1 165:19,24 171:10,11,23 174:13 183:20 187:23 188:13 188:19 189:7 190:3 192:20 194:1,2,8 199:6 201:11 203:3 209:4,7 213:21 214:15 223:22 224:23 225:7,14 226:12 227:14 227:21 228:1,6 229:4 231:8 232:7 236:17 238:18 242:4 244:6,7 250:20 252:1,2,14,17 252:20 256:6 258:19 260:24 261:10 268:10 268:12,21 274:9 276:23 284:4,9 288:6 302:10 309:15 309:17 314:3 326:2,21 327:6	342:15 344:17 knowing 270:8 270:11,13 knowledge 72:8 173:23 253:23 341:3 known 106:15 164:3 225:21 225:22 226:3 257:6 306:24 339:22 knows 144:15 Koch's 220:24 Kurta 321:5 322:2 <hr/> L L 1:16 358:12 labeled 262:10 laboratory 15:23 lack 328:13 329:2 lady 91:16 laid 182:6 land 202:5 Langseth 202:8 203:5 240:24 273:23 298:23 299:16 301:1 301:15 305:10 305:10,13,15 319:9 321:17 322:1 large 36:22 59:15 68:21 74:3,6 89:3 97:11,12 98:24 126:17 127:1 202:14 203:20 239:13 240:5 241:20 275:14 293:19 largely 167:18 late 59:14,22 66:1 142:21 241:8	law 2:12 88:1,6 89:14 Lawlor 3:15 9:4 lawyer 10:17 24:10 89:14 99:16,21 LAWYER'S 362:1 lawyers 89:10 89:20 128:9 139:20 140:11 144:23 156:8 156:10 253:7 laziness 181:17 lead 288:12 leading 339:19 340:22 learn 153:6,10 163:9 192:24 237:22,23 leave 111:24 lecture 47:6 49:8 lectured 46:15 46:24 48:12,22 49:12 lectures 47:21 led 232:12 307:1 left 36:5 59:20 59:21 70:9,11 legal 90:18 189:18 309:12 legs 189:7,11,13 189:21,24 190:4 Leigh 170:20 length 167:5 lengths 298:19 let's 31:14 78:9 83:16,17 86:7 94:19 107:2,4 116:16 123:16 155:1 163:7 172:5 190:23 206:11,19 220:7 230:7 231:12,12
--	---	---	--	--

245:6 261:23	331:3	282:11,24	9:5,11 10:12	56:11,20 57:14
261:24 262:1	line 8:6,9,12,14	285:14,22,24	11:1 16:22	58:17 60:24
262:24 263:2	159:7 187:10	286:5,14,15,17	20:6 22:14	63:14 65:16
278:19 280:23	246:12 288:22	287:6,10,16,21	24:22 87:1,13	66:23 67:7,18
286:19 288:2	302:7 331:12	291:19 292:2	87:15,23,24	69:2,18 70:1
293:2 318:7	360:4 362:2	293:11 297:6	88:12,16 89:7	72:4 75:21
320:4 322:11	linear 67:5,8,9	315:13 316:20	89:17,18 90:2	78:13,24 79:18
324:4 332:1	67:14,17,22	320:19 344:24	90:7,10 91:4	80:1,22 81:17
334:22 343:20	68:1,7,11,18	345:22 355:7	93:5 98:7,10	82:10 83:2,5
344:24 354:22	lines 291:6	listed 46:1,23	126:22,24	84:1,3,21
356:5	333:23	48:10 72:7,19	138:7 141:19	85:17 95:3
letter 212:3,6	link 198:17	100:23 109:9	145:8 156:2,23	102:9 103:17
letterhead 131:3	271:7	113:13 123:8	156:24 157:3,5	111:9 113:24
letters 21:22	Lisio 6:21 354:6	123:13 217:3	158:15,18,20	115:5,21
211:7 327:10	354:17,23	248:24 250:16	158:22 159:1	116:11,21
letting 326:1	list 4:23 5:8,18	258:7,8 279:9	160:3 171:14	125:12,15
levels 75:12 76:8	11:10,12,14,14	282:21 287:18	176:24 177:4	126:2 128:18
76:15 78:15	11:24 12:5	listen 295:19	184:22 193:14	132:20 136:24
330:1 336:13	17:23 25:24	listening 48:3	223:5,16,19	137:20,22
Lewis 74:5	42:15 49:18	listing 37:5	225:8,12,17	139:22 140:13
LHG 1:6	61:24 62:1,8,9	85:20 119:22	260:19 266:23	141:10,22
liability 1:6 97:2	63:22 95:1,6	lists 11:14 60:18	267:5 271:13	142:2 143:16
97:5	95:21 96:1,4	95:8 234:24	272:10 289:2,5	144:23 146:6
liaisons 20:24	103:24 109:19	292:5 293:19	325:17	146:20 149:15
librarian 131:14	109:23 110:3,7	293:22	little 22:16	150:20 151:2
133:5,18 168:7	110:8,11	literally 28:9	107:17 111:11	151:12,16,17
175:9,20 177:8	111:17 119:23	32:12 270:9	111:11 114:10	152:6,12,16
270:17 279:22	120:4 123:3,18	literature 25:15	118:13 197:6	153:4,13,17
librarian's	123:19 124:1,9	25:16 89:21	202:7 229:6,18	154:2 155:3,7
136:16	124:13,14	99:1 114:9	270:8 334:23	155:11 157:1
library 54:8,12	173:4,6 176:1	115:19 116:12	Liu 321:5 322:2	157:19,24
54:16,21 55:1	177:8 223:21	139:8 149:24	lived 330:15	158:16,21
55:6,11 175:13	227:8,23	174:23 175:10	331:5,7	160:5,9,16
license 50:4	244:14 245:17	175:12,21,23	lives 114:18	161:18 162:12
life 70:22 336:23	245:19 246:1	177:9,19	living 177:22	162:16 163:12
lifted 186:14,17	246:12,15,19	193:15 194:1	LLC 3:11,11	163:22 165:8
light 65:24 66:8	247:15,22,22	195:6,12,24	LLP 2:8,17 3:2	167:14 168:23
327:20	248:9,16	196:6,17 198:6	3:7	169:4 170:11
likelihood 77:8	257:15 263:18	198:13,16	local 339:18	170:15,19,22
likes 56:2	263:23 264:22	200:12 202:10	340:21	171:19 172:19
limit 81:15	264:23 265:3,7	203:7 233:3	Locke 2:18	173:2 176:16
limitation 17:21	265:8,16	237:8,15	12:14 13:19	179:4,10,15,21
limitations	266:16 267:6	239:16 268:22	27:9,24 28:18	180:3,11 181:7
334:13	268:1 276:3	271:22 272:5	29:23 31:8,22	182:21 183:22
limited 29:17	277:3 278:4	279:21 283:1	40:15 41:22	184:12,19
95:22 349:22	279:7,7,13,24	335:19 352:21	44:5 46:12	186:21 187:21
limits 19:18,20	280:17 281:16	litigation 1:7,20	48:7 50:9	188:6,12,19

189:5,17	288:17 289:18	longer 45:8	169:8,9,13,15	205:1 228:9,18
190:17 191:12	290:2,14,18	107:10 109:11	182:14 186:3	lung 78:16 79:16
194:4,10 195:3	291:10 292:12	109:13 178:21	199:14 203:16	79:23 80:20
195:10 196:2	294:9,19	180:9	219:15 240:7	81:4,13,22
196:20 197:4	296:20 297:13	longitudinal	242:3 267:2	82:7 310:16,21
197:13 198:7	299:6 300:6	75:2 77:11	273:23 276:1	311:1 327:17
198:21 200:6	301:10 303:19	look 11:13,23	276:19 280:8,9	327:19
200:16 201:10	304:16 305:24	14:9,14 15:13	280:15 283:22	
201:15,21	306:20 307:12	20:12 24:16	283:23 292:22	M
204:8,21	307:24 308:5	29:5 31:15	298:21	M-O-O-R-M-...
205:12 206:5	308:23 309:9	37:6 54:7,15	looking 14:5	224:14
206:16 208:17	310:3,17 311:2	59:2 66:15	37:5 63:21,22	M.D 1:13 4:5
208:20 209:5	311:8 312:9	68:5 75:3,5,18	64:3 76:12,14	9:21 207:1
209:21 210:4	313:10,19	83:16 85:4	97:22 109:22	358:8 361:16
211:15,19	314:5 315:21	94:19 107:4	109:24 110:14	Magazine 62:22
212:15,16,22	317:1 318:8,17	116:16 117:23	127:7 141:22	mailed 210:10
213:1,3,8,14	319:2,17,21	120:19 122:15	142:5 179:14	maintain 353:5
213:18 214:23	320:9,14 321:7	148:7 154:18	179:18,19	major 296:5
217:19 218:6	321:14 322:5	155:5,13 163:7	195:2 202:14	majority 89:18
218:22 219:21	322:17 324:7	166:4 169:17	213:17 233:19	maker 106:18
221:7,14 222:3	326:23 329:13	172:6 204:17	248:18 280:11	106:24
222:12 223:14	330:10,21	209:3 214:16	282:17 299:22	making 47:5
226:1 227:9	331:20 332:18	214:24 215:16	302:18 304:22	279:16
228:8,11 230:1	332:22 333:10	224:12 244:17	311:11 317:13	malpractice
231:7,20 232:2	337:7 338:15	246:2,21,22	332:19 355:8,9	92:8
232:20 233:5	338:24 339:6	247:14 251:14	looks 14:6 173:9	man 56:1 91:11
234:12,20	340:7 342:3,23	254:23 263:2	302:22 315:5	141:12 268:20
235:9,16,22	343:2 344:4,16	264:3,7,9	355:12,12	manage 108:24
237:3,18,24	345:14 348:9	268:9 274:24	loosely 263:21	109:1
238:3,12 239:1	348:12 349:2,4	276:24 278:20	Lorraine 329:19	management
242:11,21	349:7 350:6,10	280:23 285:8	329:22	36:20
245:20 252:5	351:1,9 356:18	286:19 289:21	Los 253:17	manager 168:7
256:23 257:18	Locke's 137:20	292:8 293:2	loss 112:7 113:7	Manatee 322:20
258:2,11	137:23 144:24	295:1,9,12	lost 109:4	manifested 77:4
259:23 260:14	151:18,20	296:7,9 302:9	lot 12:17 28:3	manifests 69:5
260:21 261:6	Lockheed	309:21 315:2	35:23 53:20	manufactured
261:12,19	106:20 314:16	324:4,21 325:3	147:13 175:6	96:23
265:1 266:5	login 257:1	325:7 327:8	178:1 202:1	manufacturer
268:18 270:21	logistics 165:23	330:24 343:20	231:21 232:17	96:15
271:17 272:13	166:2,6,7,19	345:21 352:2	298:2 305:11	March 171:13
272:19 273:17	logon 256:19	354:22 356:6	loud 355:22	171:15 207:11
274:7 275:7	long 61:17 76:7	looked 64:11	Louis 3:9 253:16	208:14 213:13
276:13 278:11	145:24 162:20	75:10 76:5,6	love 91:20	214:1 234:20
280:2,20 281:8	165:14 168:15	76:20 77:16	lower 85:14	mark 3:3 230:7
283:9 284:2,14	174:11 175:4	125:17 132:14	246:2	263:7 274:14
285:10,13,18	177:16 202:5	132:23 148:20	luck 188:6	337:5 355:6
287:2,17	214:11 267:8	161:13,14	lunch 204:22	marked 8:13

13:8 31:16	74:15	249:17 254:10	168:3,13	318:15 321:18
83:19 84:18	matter 9:10	282:7 283:8,15	meetings 19:4	335:14,18
85:13 94:21	22:14 156:20	290:7 293:17	167:20 172:1	338:6 341:12
116:18 142:15	210:19 220:19	294:7,16 296:3	member 18:22	342:22
142:15 154:9	McGill 33:1	299:1 307:5,8	18:24 33:3	method 119:4
154:10 158:7	34:14 35:8	307:11 323:10	50:15,18,21,24	methodology
172:6,8 183:14	36:5	340:17	51:3,11 58:8	189:14 190:12
205:5 206:9	McTiernan	meaning 112:3	179:10 301:9	190:14,16,24
229:12 230:8	43:12,15,20,24	means 74:12	members	193:11
230:10 245:12	162:4 224:19	223:6,7 266:12	122:23 124:18	methods 216:18
255:11,12,19	McTiernan's	277:12 338:12	202:9	219:14
263:4 274:15	224:21	358:20	memorandum	methylmethac...
278:21 281:2	MD 4:21 5:6,22	meant 71:3	7:6 230:14	64:9
286:21 287:3	6:6	110:2,6,10	memory 12:12	Mhegarty@sh...
292:16 314:21	MDL 7:7 9:11	112:17,18	96:19 202:6,20	3:5
314:22 324:13	158:23 163:14	124:8,17 270:2	355:10	MICHAEL 2:13
335:3 352:8	163:15 185:21	282:9	MENEO 2:12	Michelle 1:15
354:23 355:1	191:5,8,18,19	mechanics	2:13	9:18 170:20
markers 240:8	191:24 192:1	137:2	mention 16:17	358:12
298:11 340:2	193:2 205:24	mechanism	249:13	mid-2015
Market 2:4	212:13 223:4	288:11 306:16	mentioned 65:2	201:13
MARKETING	225:13 232:19	339:20 340:23	86:5 107:9	middle 343:2
1:5	235:5 237:23	media 117:17	113:22 117:5	Mills 321:3
marks 245:20	238:2,16,24	228:22 332:9	222:18 223:2	mind 57:20
245:23	252:17 253:12	356:14	236:3 268:11	150:6 159:5
Martin 314:16	262:13	mediated	274:19 300:1	181:17 269:5
Massachusetts	mean 25:17	327:15	321:22	mine 88:8 126:7
37:22 65:24	27:11 28:14,16	medical 32:12	mercury 74:5,22	169:15,17
master 109:3	28:20 56:13	33:11 50:4	75:9 76:16	172:17 187:17
master's 42:4	67:5 68:2,4	71:5 91:24	87:18	315:6 347:20
masters 39:12	70:23 77:6,24	92:8 97:16	merely 72:20	Mineral 18:15
match 114:15	78:3 80:9	323:9,11	351:23	mining 88:7,10
materials 5:13	92:11 98:4,11	medicine 34:10	Merritt 321:4	Minneapolis
5:14 6:15	101:5 105:8	35:18 36:18,22	message 112:19	100:10
60:13,14 86:20	106:6 111:16	37:19 40:3,19	met 124:24	minute 47:11
97:23 195:16	112:20 137:10	45:1,3 50:3,3	126:2	153:7 295:20
223:21 224:3	139:9,10,10	58:7,11 59:19	meta-analyses	355:15
235:1 244:24	148:1,2 149:2	61:10,13	321:21 337:22	minutes 48:4
263:13 265:10	154:3 164:10	122:21 123:5	meta-analysis	204:23
271:1 278:17	165:5,21 166:1	124:20 175:13	72:23 73:9,20	miscited 243:23
279:4,24	168:5,6 171:18	178:11,15	74:3,9,11,12	misheard 316:6
296:15 320:15	172:3 173:16	179:12 325:12	101:13,16	misleading
345:24 351:24	181:20,20	medicines 50:2	160:14,18	187:17
352:2,13	183:3,21 186:6	meet 52:14,17	161:11 162:8	missed 179:6
Materion	199:16 201:7	106:17 126:5	197:9 202:8	Missouri 3:4,9
106:15	207:24 225:20	336:17	301:17 317:19	misstate 115:23
mathematical	225:21 238:9	meeting 19:2	317:24 318:13	mistake 173:14

180:16,18,24 181:6,12 182:15 186:4 mistakenly 187:8 misunderstood 319:4 misusing 70:3 Mm-hmm 311:15 Mode 338:22 model 334:16 models 221:1 modern 55:18 269:7 270:10 moment 53:5,6 74:1 180:14 224:16 299:24 337:4 money 153:21 monitoring 323:9,12 monogram 149:9 monograph 149:10 monographs 62:4 148:5 monomers 122:4 monotonic 67:20 68:13 month 118:15 120:3 133:15 134:2 136:15 136:16,17 163:19 171:12 171:17 239:20 241:22 280:13 monthly 133:13 157:15 158:11 174:23 175:10 177:18,20 182:8,9 239:15 280:16 months 163:20 163:20	Montreal 33:21 33:22 59:20,21 70:19 Moorman 224:13 morning 10:4,5 202:6 214:20 mortality 64:2 motions 23:15 mouth 105:11 105:20 multiple 217:20 241:1 266:7 Muscat 297:23 mutually 218:11 <hr/> N <hr/> N 4:2 name 9:3 10:7 20:8,9 42:24 65:21 72:7 125:17 150:7 151:20 152:15 185:2 224:15 225:9 249:14 250:12 255:2 257:10 277:15 309:23,23 314:18 322:19 322:20 names 46:6 223:23 224:1 276:3 narrow 331:6 National 19:12 175:13 243:15 247:5,16 251:4 251:17 295:2,8 nature 217:6 NCI 6:18 19:15 19:19 242:10 243:9 244:10 248:6,12 249:8 249:9,14 250:9 250:12,19,20 256:3,10 257:7 257:15 258:18	259:7,9,12 260:17 261:3 295:10 near 63:3 215:18 325:14 necessarily 72:18 156:5 necessary 109:5 197:16 240:18 359:4 necrosis 340:1 need 45:14 52:7 55:5,10 75:1,2 75:5 80:11 236:24 244:17 311:8 needed 36:16 203:3 needs 155:12 negation 302:13 negative 302:20 negotiated 97:1 neighborhood 330:16 331:4 neighbors 329:19 330:15 neither 186:20 186:23 Ness 284:19 286:10 297:19 297:22 300:2 300:11,16,19 321:3 neurological 74:21 75:11 77:20 never 18:23 24:14 48:5,8 48:20,21 49:1 49:12 52:3,5 59:18 68:22 69:21,22 71:2 72:7 73:21 78:8 91:23 94:17 105:5 110:2 124:24 139:15 141:3,4	160:14 161:14 182:14 186:2,3 187:9 199:14 200:3 308:10 324:24 330:7 338:7 Nevertheless 262:13 new 1:2,14,14 2:14 9:9 36:23 37:12 45:13 52:24 53:1 61:6 91:12 94:3 119:7 155:21 156:22 157:3 158:23 167:14 171:20 184:20 214:20 223:15,18 241:13,24 346:24 nice 144:13 356:20,21 nickname 191:11,17 nicotine 79:12 79:16,19 night 13:17 30:11,14 34:5 143:10 154:15 155:18 157:9 167:17 355:7 nine 26:15,24 95:8 114:15,20 297:8 315:16 316:20 317:13 318:9 319:12 ninth 295:23 nonlawyers 253:8 nonworkers 77:6 normally 114:12 North 18:15 Notary 1:17 358:14 361:23 notation 267:2,3	note 177:20 339:1 noted 9:15 207:6 359:11 361:11 notes 236:4,8,9 236:14,14,18 236:19 238:21 356:6 362:1 notice 1:14 4:14 13:3,13,21,22 14:3,15 170:16 November 324:19 number 9:12 11:11 16:18 26:8,11,19 45:19 46:16 47:1 49:7 59:8 61:4 63:19,19 63:24 64:19 88:19 97:11,12 99:6 105:9 109:9 110:23 111:5,6 117:17 126:17 130:8 130:21 131:6 132:24 133:6 133:16 136:14 159:5,23 160:8 160:10 162:24 167:12 175:5 186:15 202:14 205:14,18 206:2 225:6 226:9,21 227:17 228:22 235:14 242:9 242:13,15 244:24 245:2 246:17,18 247:10,14 251:8,12,15 255:14 277:15 285:9,22 287:7 287:9 305:12 332:9 346:8 356:14
---	--	--	--	--

numbered	149:16 150:3	260:13,14,20	350:10 351:1,2	112:5,11 127:2
264:23 265:15	150:17 152:16	260:21 261:5,6	351:8,9	136:2,12
numbers 46:6	153:4 160:4,5	261:12,13,19	objections 13:22	137:20,23
74:6 240:5	160:16 161:17	261:20 263:24	14:2	144:24 167:22
276:15 290:20	161:18 162:12	268:17,18	objective 302:12	168:7 173:18
290:24 291:3	162:13,16,17	269:21 270:21	328:13	210:3
291:21,24	176:16,17	271:4,17,18	obscure 328:12	oh 84:1 86:3
NW 2:9,18	179:5 180:11	272:13,19	observation	95:20 138:20
NYU 33:13,15	181:7,8 182:21	273:17,18	312:2	176:8 206:13
<hr/>				
O	182:22 183:16	274:7 275:7,8	observed 341:20	234:13 262:9
O'Dell 170:20	183:22 184:12	276:5,12,13	obviously 124:8	264:6 277:20
obesity 355:24	184:13,19	278:11 280:2	126:1 146:15	281:14 295:19
object 191:13	186:21,22	280:20 282:8	147:2,4	323:17 343:2
231:8	187:21,22	283:11 284:2	occasionally	Ohio 329:20,22
objection 27:9	188:5,11,12	287:17 288:17	54:19 140:20	okay 10:24
27:24 28:17,18	189:4,5,16,17	289:17,18	240:13	11:13,21 12:4
29:23,24 31:7	190:17,18	290:2,3,13,14	occasions 49:7	12:15,24 13:2
31:8 40:15	193:17 194:4	291:10,11	142:9	14:13,20 16:1
41:21,22 44:4	194:10,11	294:9,10,19	occipital 114:12	16:18 18:3,21
44:5 46:12	196:2,19,20	296:19,20	occupational	19:20,23 21:19
48:7 50:9	197:4,13,14	297:13,14,20	4:18 19:21	21:21 22:9,15
56:10,11,20,21	198:7,20,21	299:6,7 300:6	32:15 40:3,18	23:2,14 24:16
57:14,15 58:17	200:6,7,16,17	300:9 301:10	50:1 58:6,9,11	25:16 26:7,20
60:24 63:6,14	201:14,15,21	303:19,23	58:15,23 71:19	27:18 29:13,16
63:15 65:16	204:8 208:16	304:15,16	77:7 112:24	30:12,21 31:3
66:23 67:7,18	208:17 209:21	306:20,21	121:19 122:21	31:14,24 35:10
68:3 69:1,2,18	210:4 211:15	307:12,23,24	123:5 124:19	38:6 39:11
70:1 72:4	211:19 212:16	308:4,23,24	127:19 129:8	41:1 42:16
75:21 78:13,24	213:1,2,14,18	309:8,9 310:3	179:11 325:11	43:4,11,14,23
79:18 80:1,13	214:23 217:18	310:17,18	329:15	44:9,22 46:7
80:22 81:17	217:19 218:22	311:2 312:9	occupational/...	47:3,20 48:1
82:10 83:2,5	219:1,21 221:7	313:10,19	60:21	50:14 52:16,21
93:24 102:9	221:14 222:3	314:5 317:1	odds 288:9	55:17,22 56:17
103:17,18	222:12 223:10	318:17 319:2	338:10	58:12 60:11
110:4 111:8,9	225:24 226:1	319:17,18,21	offer 221:17	61:23 63:8
113:24 115:5	226:17 232:2	320:9 321:7,14	offered 52:4	65:10 67:15,24
115:20,21	232:20 233:5	322:5,17	157:2 282:14	68:15 70:5,16
116:11 128:18	234:12,21	323:13 326:5	351:22	71:1,7,21
134:14 136:23	235:9 237:3,18	326:23 329:12	offering 139:13	73:10,16,19,22
136:24 138:15	238:3 239:1	329:13 330:10	139:17 140:11	77:9 78:2,5,19
139:22,23	242:11,21	330:21,22	141:8 221:4,12	79:2,7,11,15
140:13,14	243:11 252:5	331:20 333:9	office 51:13,16	80:11 82:14,22
141:9,10	253:19 254:21	333:10 338:15	51:17,18,22	85:3,11,19
143:16 146:6	256:22,23	338:16 340:6,7	52:2,3,20,22	86:1 87:22
146:19,20	257:9,17,18	342:3,4 344:4	53:8,9,12,24	88:23 89:6
148:24 149:15	258:1,2,10,11	348:9 349:2,8	55:19 59:18	90:15 91:2
	259:22,23	349:16 350:6,7	109:10,11,12	92:7,10,21

93:2,15 100:22	192:3,6,11,23	315:10 316:3	opined 98:19	orders 22:10
102:5,16 103:3	193:9 195:22	316:15,18	221:22 262:14	organization
104:6,16,24	197:2,8 198:4	317:15 318:15	298:20	17:18
105:22 108:20	199:9 200:21	319:13 320:4	opinion 29:17	organizational
110:22 111:21	201:3 204:13	322:11 323:23	31:4 80:18	36:21
116:16 118:6	206:5,15 208:4	327:3 328:19	103:15,21	organizations
118:11,22	209:15 212:1	332:22 334:22	128:15 148:23	17:24 20:13,18
119:9,23	212:23 214:16	337:9 339:6,8	149:1,6 189:18	49:9
120:12 122:11	215:16 216:4,7	339:12 342:23	204:3 221:5,12	organized
122:16 123:14	218:16 220:7	348:2,12 349:9	221:17,19	232:22
124:7,21 128:8	221:23 222:7	350:18,19	291:7,22 304:4	original 99:2
129:2,14	223:24 225:19	352:1 353:7,18	304:11,12,14	108:21 126:16
131:24 132:14	226:11,24	353:22 354:12	305:1 308:19	163:3,4 317:18
133:9,20 134:4	227:6,11 228:7	354:22 355:14	318:16 333:19	317:23 318:6
134:9,24 135:5	229:22 231:6	old 55:14,16	340:12 345:16	318:21 339:3
135:9,21	233:2,12,22,24	97:22 118:4,10	346:2,3,6,9,12	345:10 348:3
138:18,21	235:21 236:8	119:21 121:21	346:22 347:5,7	359:15
139:1 140:22	236:23 237:11	122:1,5,9	347:13,17,23	originally
141:3,16 142:1	238:17 241:17	269:4,11	348:19,23	175:18
142:7 143:3	242:19 243:3	older 118:7	349:1,11,17	originals 31:21
144:2,10,24	244:9 246:21	251:21,23	opinions 5:16,18	ostensibly
145:1,16	249:18 250:7	Omni 1:14	24:3 218:23	238:21
146:14 147:2	250:22 251:19	once 10:12	262:22 281:1	Oules 10:13,14
147:19 148:4	252:1,9,23	11:24 52:9,9	282:1 287:6,8	16:4 144:5
148:11,11,22	253:14 254:2	52:12 104:4	287:11,14,16	152:5,11 156:1
149:23 150:9	255:2,7 256:6	105:17 106:23	291:17,18	184:11,16,24
151:19,22	256:14 257:5	134:10 149:13	296:17 302:8	185:2,5,8,10
152:21 154:8	257:12 258:15	151:13 182:11	303:22 306:7	185:15,24
154:23,24	258:22 259:5	196:10 209:9	344:2,6,13	191:5,7 192:13
155:11 156:17	260:5,24 262:2	209:17	345:8,18 346:7	192:18 193:5
157:1,24	262:12 264:5	ones 226:20	347:10,12,15	214:5 216:14
158:21 159:9	266:1,19	251:21,23	347:20,24	223:8 229:9
161:9,22 162:7	267:22 268:10	252:2 279:17	348:4 350:21	232:10 235:20
163:23 165:16	269:1,17	353:4,8	351:14,18	237:12,16
166:2,8,15,16	271:11 272:8	ongoing 75:12	354:3	238:2 241:12
167:7 168:4,11	273:2 274:5,12	122:2 174:1	opportunity	249:5
169:7,16,23	274:24 276:18	241:21	88:20 106:17	outcome 15:17
170:3,9,17,21	277:11,20	online 54:7,11	352:6 358:9	77:20
171:11,24	278:1 283:6,14	54:20 55:1,5	opposed 68:7	outside 49:5,8
172:5 173:2	283:20 287:12	55:10 109:17	318:22 325:9	89:14 103:23
174:4 175:2	288:1 291:4,15	opened 105:20	option 208:8	104:19 210:2
176:4 177:6	296:14,18	opens 105:12	oral 17:2	ovarian 6:20
179:21 180:3	297:1 299:13	opine 31:10	order 195:17	21:3,12 22:3
183:20 184:4	300:22 302:6	152:13 219:9	237:2,16	29:22 31:1,6
185:14 187:18	303:3 307:16	219:12,19	250:17 271:23	31:11 44:2
188:3 190:10	308:7,18 309:5	272:15 299:4	307:16,17,18	48:24 49:13,14
190:23 191:5	313:14 315:2	304:23 351:6	308:20 350:3	103:16 146:17

146:23 147:15	46:4 49:17,20	137:12 139:11	348:18 355:18	164:22
147:21 149:5	62:2,7 63:22	149:14 150:15	paragraphs	particulate
150:1 152:14	73:7,11,14	176:14 181:2	27:3 182:6	121:23
175:11 176:2	84:3 85:7	325:16,20	293:21	particulates
193:22 194:15	120:7 123:7	326:2,4,9	parameters	16:15 147:14
195:14,20	155:8,10	panel 18:22,23	153:24 154:3	233:20
196:14,15	172:15 174:7,7	301:5,9	paraphrasing	parties 156:6
198:18 202:11	174:7,9 194:24	paper 63:5	313:16	partner 323:5,7
203:17 204:5	195:2 206:8,11	113:13 180:15	parents 91:14	parts 149:19
216:24 217:1	206:20,23,24	208:2 240:17	Parfitt 170:20	292:6
219:8,11 223:5	207:9,10,13,17	240:19 278:5	part 17:9 28:24	party 212:4
226:14,20	208:15 209:20	289:20 298:5	29:2,9 33:1	pass 40:20
227:5 228:4	215:9,11,12,17	298:23 300:12	35:3 37:15	156:12
239:17 240:2	215:18 216:5	300:21 301:16	40:17,19 71:14	Passed 40:6
247:9 252:4	216:12,15	302:10 303:5	84:5 95:4 97:1	paste 181:21
257:16,24	217:24 218:1	314:7	99:8 100:3	183:21 248:22
258:9 259:8,11	220:9 223:1	papers 14:22	116:13 122:22	pasted 184:1
259:14,20	231:16 242:15	15:9 16:2	128:14 135:8	Pastides 267:4
260:7,9,10,11	246:3,10,23,24	47:13 63:20	156:5 175:8	path 39:24
262:15 271:8	249:20,24	64:1,8 74:4	188:9,9,14,23	patient 72:1
272:3 273:15	250:23 251:11	240:5,7,11	188:24 189:7	218:12
275:5 276:2	261:23 262:1,7	282:12 283:16	220:3 262:10	patients 59:16
279:10 281:24	264:15,17	298:1,21 299:1	272:24 276:19	71:14,17 91:6
285:3 288:12	265:19 273:3,7	299:5,15,19,20	292:22 329:2	256:12,16
289:15 290:1	284:13,22	paragraph	333:18 339:2	pause 348:14
291:8 295:20	288:2 295:2,13	121:3 179:16	345:10	pay 36:17
297:10 302:17	311:13 315:8	182:15 183:4	part-time 37:23	PCPC 2:20
303:13 305:20	324:23,24	185:15 186:3	participant	199:19
306:15 312:2	327:9 328:21	186:14,15,18	19:19 71:23	pdf 325:9
312:17 316:22	332:14,23	187:4 195:7	72:2,6,20	PDFs 53:20
334:14 335:22	333:2 335:11	223:2 242:9,12	participate	PDQ 6:18 256:7
338:1,8,13	337:2,11	242:15,23	47:18 168:12	256:9,20 257:2
340:3 343:10	338:21 341:6	245:8 246:23	participated	257:14,23
344:10 348:8	342:16 343:1,3	246:24 250:14	15:1 18:22	261:18
348:22 349:20	348:4 355:14	251:3 260:8	19:10 70:7,21	peer-reviewed
353:13 354:6	355:16 360:4	262:3,6,12,21	70:24 71:4,10	85:21 86:3
ovaries 233:19	362:2	264:10,24	72:15	107:6,19
ovary 341:5	pages 5:20 62:9	265:18,21	participating	109:19,23
	84:5 85:13,14	266:3 280:9,13	168:2	110:15 139:8
P	107:5 154:19	300:24 303:9	particular 12:5	195:5,11 196:5
P 20:14	172:14,24	311:13 312:20	88:11 111:23	268:15 335:19
P.C 2:2	246:6 249:3	324:4,5 328:7	118:17 152:19	pen 235:23
p.m 215:20	250:2 292:10	332:13 333:2	153:2 260:18	pending 143:22
228:16 357:5	293:11 344:19	335:13,15	298:20	Penin 298:3
page 4:13 5:5	344:19 347:21	336:7,18	particularly	Penninkilampi
6:5 7:5 8:6,9	351:13 361:6	339:13,13	64:17 123:4	277:6 297:18
8:12,14 37:6	paid 84:14	341:7 345:2	particulars	298:4 317:17

319:6 321:23 322:4,9 337:20 Pennsylvania 2:4 96:16 330:5 people 21:18 39:11,14,17 66:7 72:1 76:14 78:15,21 80:5 87:18 90:2 109:9 112:13 131:18 168:8,12 203:23 296:5 302:19 304:19 329:17 330:24 331:5 346:8 percent 59:16 182:18 235:4 291:7 312:3 313:17 338:13 perform 161:3,5 performed 72:22 perineal 146:17 195:13,19 219:6 240:1,1 247:8 252:3 258:7 262:14 272:2 273:15 275:6 281:22 291:9 293:5 297:11 305:20 306:14 312:16 316:23 334:5 335:22 338:2,7 343:11 344:8 348:7,21 349:20 356:1 perineally 319:16 period 37:16,20 76:17 111:22 112:1 154:21 158:15 170:5 238:11,19,20 241:21 354:20	periodic 242:4 periodically 127:5 226:21 periodicals 51:8 53:16 periods 89:3 permeates 114:6 128:1 permitted 190:9 persist 74:22 persistent 339:23 person 17:2 108:12,14 140:24 147:5 156:4 165:10 167:9 208:11 211:9 personal 13:19 14:1 20:1,5 92:9,11 199:19 perspective 195:17 271:23 pertain 287:22 pertains 243:13 ph 1:21 Ph.D 42:18 43:5 Ph.D.s 39:14 Philadelphia 2:4 phone 17:1 134:8 140:18 145:10 150:14 165:9,11 167:8 172:1 phosphorous 327:22 photocopy 352:6 phrase 183:24 189:20,24 physical 175:24 physically 174:21 175:5 physician 32:15 34:22 35:1,4 37:10 71:18,19 92:22 127:20	129:8,8 physician's 257:14 physicians 50:1 256:12,17 picked 293:20 301:21 302:21 piece 114:10 203:20 267:15 pieces 211:3 pizza 144:15 place 167:21 168:17 214:2 222:8,17 253:1 253:6,15 273:21 274:6 places 265:23 plaintiff 7:7 90:9,14 94:7 94:13,17 96:14 99:21 230:19 262:13 plaintiffs 2:16 28:8 91:5 92:6 92:6 93:22 156:10 plaintiffs' 14:2 223:18 230:18 255:13 planned 24:20 plant 65:19,20 68:20 329:20 330:4,6,16 331:7 please 31:15 116:7 155:2 233:6 243:17 245:11 254:15 278:20 349:6 354:10 359:3,8 pneumoconiosis 97:14,15,19 point 32:21 36:14 38:3 51:15 72:17 73:6 86:23 87:2 104:2	131:21 136:22 142:17,23 147:19 148:23 150:20 151:5 152:22 163:21 168:9 176:5 177:7 237:22 241:7,16 260:17 266:14 300:8 317:10 326:7 345:12 345:13 pointed 265:24 286:11 312:20 pool 74:14 pooled 74:1,6 75:7 338:9 pooling 74:10 poor 288:9 populations 63:3 121:13 portion 116:10 155:20,24 179:6,8 266:2 position 57:23 57:23 180:2 positive 233:20 302:17 335:21 338:1 343:9 possibility 148:3 164:16 261:8 278:6 possible 71:13 75:20 104:15 141:22 164:20 169:5 194:23 213:10 220:18 241:22 243:22 278:14 306:24 313:4,24 317:2 339:20 340:23 342:10 343:14 343:17 344:12 351:10 possible' 311:19 possible.' 312:22 possibly 42:14	124:5 150:11 212:8 226:6 236:22 349:23 post 169:24 191:17 postdoctoral 33:2 34:17 postulates 220:24,24 222:11 potential 200:14 303:17 334:4,6 336:12 355:23 potentially 240:6,10 powder 1:5 9:11 15:3,4,16 16:8 16:22,22 17:10 17:19,20 21:2 24:22,23,24 146:23 195:20 219:7 240:2 262:15 271:8 272:3 281:23 293:6 312:17 344:9 powders 195:14 312:1 practical 44:20 45:15 practice 40:5 59:4,7,19 61:6 PRACTICES 1:6 pre 169:9 pre-1972 199:11 200:12 pre-MDL 229:5 preceded 303:6 precisely 238:4 238:10 predate 252:2 predated 242:20 predecessors 199:18 predisposed 69:7,10
---	---	--	---	---

preparation 167:6 171:22 214:6	43:15 95:4 129:2 171:21 176:19 191:8	164:12,13,19 170:10,14,18 223:3	298:4 proof 304:21,23 309:3,6,7 350:4	17:8 19:8 21:11 120:5,17 123:12,16,22 124:4 139:13
prepare 135:2,6 167:9 173:12	223:4 252:11 273:8,12	product 307:20 production 8:8 95:4	properly 102:11 proposed 336:11,16	298:18 publish 138:22 139:19
prepared 14:23 205:19 231:24 274:13 296:11	279:20 295:10 299:23 312:6 331:8 340:3,15	products 1:5,6 13:20 14:1 15:3,16 16:23 17:10,20 20:1 20:5 21:2 24:23 199:22 199:24 334:6	propounded 361:9 prospective 220:22 protein 339:24 proud 111:6 prove 308:10,20 proved 308:21 310:24	published 16:10 19:13 21:1,16 41:24 73:3,21 74:3 110:24 139:7 195:5,11 196:4 243:14 244:19 266:11 266:21 268:15 274:1 279:7 283:16 324:18 349:18 352:20
prepares 136:12 256:11	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	publishes 138:13 publishing 139:17 267:17 pull 175:23 193:15,15 267:11 289:20 291:5 pulled 202:10 266:21 279:22 280:8 288:23
preparing 15:1 174:21,22	privately 117:1 privileged 145:3 probably 22:21 26:5 40:11 42:15 59:16 87:10 94:16 96:18 104:11 106:14,17 107:14 108:5 123:13 126:9 131:12 132:11 135:20 141:21 146:21 149:19 159:14 165:7 165:12,18 171:20 173:17 202:4 203:4 207:20,22 216:3 256:11 286:4 322:7 323:6 326:8 332:1	professional 1:16 38:9,14 49:19 50:6 70:22 114:7 147:10 358:13 professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24 Profile 4:20 program 33:3 122:23 123:1 124:20 179:12 programs 328:15 329:16 progression 339:21 340:24 project 126:12 130:11,24 198:14 269:24 302:16 projects 121:17 131:20 promotion 44:21 pronounced 185:1 277:8	provides 91:19 125:3 175:24 providing 88:4,5 88:6 91:3,14 proving 216:18 PTI 3:10,11 public 1:17 44:12 46:23 47:2 52:18 99:11 123:7,10 178:6 180:22 185:18 304:5 358:14 361:23 publication 22:1 118:8 119:18 354:21 publications 14:23 15:10	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
present 3:13 220:19 351:18	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	publishes 138:13 publishing 139:17 267:17 pull 175:23 193:15,15 267:11 289:20 291:5 pulled 202:10 266:21 279:22 280:8 288:23
presented 14:24 250:18 336:15 342:7	privately 117:1 privileged 145:3 probably 22:21 26:5 40:11 42:15 59:16 87:10 94:16 96:18 104:11 106:14,17 107:14 108:5 123:13 126:9 131:12 132:11 135:20 141:21 146:21 149:19 159:14 165:7 165:12,18 171:20 173:17 202:4 203:4 207:20,22 216:3 256:11 286:4 322:7 323:6 326:8 332:1	professional 1:16 38:9,14 49:19 50:6 70:22 114:7 147:10 358:13 professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
presenting 15:2 283:4	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
presumably 77:5	privately 117:1 privileged 145:3 probably 22:21 26:5 40:11 42:15 59:16 87:10 94:16 96:18 104:11 106:14,17 107:14 108:5 123:13 126:9 131:12 132:11 135:20 141:21 146:21 149:19 159:14 165:7 165:12,18 171:20 173:17 202:4 203:4 207:20,22 216:3 256:11 286:4 322:7 323:6 326:8 332:1	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
presume 146:9 pretty 34:6 83:15 142:1 155:19 229:4 266:24 280:4 294:24 299:1 310:7	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
preventive 50:3 previous 174:19 182:7 223:15	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
previously 223:12 255:12	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
primarily 326:9 primary 281:17 282:6,7 283:7 283:7,10,14	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
principal 71:2,8 72:12	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
principle 210:20 principles 220:14	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
printed 118:12 119:18	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22
printout 176:1 prior 22:10,13 22:13 24:2	prison 94:4 private 51:18,22 53:8,12	professionally 39:18 professor 32:16 38:10 44:11,15 44:19,19,24 45:3,4,8,22 126:7 178:5,10 178:14,21 180:9,21 181:4 183:6,7 185:17 186:16 193:24	proven 306:24 307:3,5,10,11 provide 89:21 125:5 131:2,7 132:15,17 133:24,24 163:22 352:3 provided 86:15 99:9 130:11,13 160:8,13 164:17 181:9 217:1,7 223:21 234:24 303:16	pulling 177:9 pulls 175:10,20 pure 146:1,4 purpose 64:22 74:18 75:17 109:14 122:19 266:16 267:17 287:13 302:15 pursuant 1:14 put 31:22 103:1 107:18 110:19 110:23 111:4 114:19 120:10 170:1 171:20 171:21 186:17 191:15 237:8 244:5 255:16 264:9,22

265:15 267:24 293:10 315:21 316:13 puts 296:17 putting 109:16 111:12 puzzling 329:1	176:10 177:16 178:4,20 180:4 180:6,7 183:11 188:18 191:22 192:4 193:16 194:6,14,17,21 196:10 197:12 199:10 201:23 206:12 209:11 209:13,14,14 209:16,17 215:7 216:17 216:23 217:5 218:17 222:16 222:19,20 235:11 238:17 243:7,8,17,19 248:10 249:6 258:23 259:1,2 270:4,7 272:12 272:15,23 275:10,13,20 281:9,15,19 282:2 283:19 290:15,17 296:8 308:8,9 308:12,18 312:10,13 318:3,7 319:1 329:8,10 331:15,17 345:11,14 346:11,16,18 346:24 347:2,4 348:3	301:22 305:15 quote 220:5 284:18 286:10 288:7 301:21 303:6 306:11 306:18 312:18 313:7,9 334:11 quote-unquote 16:2 quoted 220:3 306:8 313:5,12 317:12 333:22 334:2 quotes 287:19 293:9 quoting 264:8 294:5 306:1 343:16	239:14 reach 76:18 reaching 101:11 reactive 122:4 read 18:9 19:7 22:22 25:17 28:3 30:4,10 30:20 41:7,8 41:15 42:2,10 42:12 43:2,13 43:18,21 47:13 51:7 53:16 54:11 55:1,5 55:10 56:14 57:13,17 81:14 83:6,11,14 98:24 115:24 116:6,9 147:20 148:4,7 149:9 149:9,12,13,17 149:19,23 161:24 162:1,2 162:3 181:11 186:1 190:6 193:21 198:13 202:1,2,12 203:4,14 216:8 216:13 218:13 219:23 221:2,3 223:16,17 224:23 226:7,9 227:1,4 232:21 235:14 236:4 238:22 239:18 240:18,21 241:18 262:17 262:17 267:24 268:4 269:23 270:18 277:17 278:3 279:23 280:19 291:19 299:18,19 302:22 304:9 312:12 313:4,8 314:7 316:11 318:2 327:7 328:17,18	335:24 336:4 336:24 341:8 352:24 353:2 354:19,19 355:21 358:9 359:3 361:5 reader 325:23 326:2 reading 42:19 43:16 96:16 178:2 195:8 217:24 231:21 232:5,18 238:23 242:24 254:17 330:4 338:19 339:8 ready 201:5,5 real 209:11,14 209:16,17 reality 109:13 really 20:11 156:19,20 208:10 260:12 326:1 337:7 355:10 Realtime 1:17 358:14 reanalysis 99:8 318:22 reason 24:12 43:8 51:19 180:7 359:5 360:6,8,10,12 360:14,16,18 360:20,22,24 reasonable 204:4 307:14 307:21 308:22 309:7 310:2 311:1 348:19 350:5 reasons 107:15 299:17 353:15 recall 42:15,19 42:21,24 44:7 65:11 71:13 87:4 99:20,24
Q Q&As 256:13 qualification 81:22 qualifications 188:10,24 qualify 81:19 318:24 quantitative 74:2,8 quantity 80:24 336:20 quarter 215:24 query 257:14 question 12:20 12:22 14:16,21 15:13 16:18 17:7,14,15 20:21 21:13 22:9,17,17,19 23:24 24:1,17 29:1,20 30:15 31:5 54:3 57:5 57:7 74:20,24 77:2,21,22 79:6,21 81:12 81:15,19 82:3 82:7,8,15,20 83:1,7,11,14 83:14 92:13,15 94:2 97:17 102:23 114:3 115:9 116:4 126:4 129:21 135:1 136:11 136:11 138:5 142:4 151:9 153:18 166:19 166:23 175:17	questioned 144:3 questions 8:13 10:9 13:6 14:14 144:20 156:16 218:7 221:13 331:22 344:12 351:11 356:17 361:8 quiet 153:6,11 quite 232:23 quotation	R R 360:1,1 railroad 126:19 raise 140:1 raised 199:9 270:5 range 131:15 132:12 ranging 63:20 Raphael 37:12 37:23 rarely 88:20 93:14 114:18 280:12 rate 131:9,13,23 132:1,3 133:3 133:4,17,18 136:15,16 rated 329:23 rates 68:6 ratio 288:9 338:10 re-ask 243:17 re-read 237:1 239:4,11,12 240:14,19 346:17 re-reading		

100:3,5,11	356:13 357:1	referred 26:4	regardless 15:17	123:4,9 124:18
104:5,9 143:20	358:6	27:4 47:10	regards 298:20	175:16 192:1
148:18 152:17	records 92:1	77:12 95:5	Registered 1:16	197:11 240:6
163:17 164:22	97:16	113:9,9,11	358:13	271:12 272:12
165:8,15	redid 186:2	217:14 223:9	regular 148:5,6	281:18 283:18
167:11 214:8	redirect 218:3	223:12,14	303:17	353:16
214:10,21	reevaluated	227:18 242:8	regularity 89:24	rely 24:21
227:13 232:11	99:7	244:11,23	regularly 48:14	remaining 85:13
233:14,16	refer 32:11	247:24 249:12	48:17 73:2	remains 204:6
254:7,12,13,15	69:16 165:21	251:23 254:4,9	regulatory	remarkable
254:17 258:12	191:5 216:12	263:22 264:6	17:18,22 18:4	313:22
289:10,16,23	247:15 248:12	277:13 286:6	19:17 89:11	remember
295:11 303:15	249:7 262:21	289:13 293:13	relate 15:2	10:22 11:10
314:17 326:13	266:2 268:6	301:16	related 5:13	42:8 105:15
326:20 339:8	269:17 270:19	referring 47:24	16:11,13 17:15	106:19 107:1
339:11	294:7 302:19	73:17 74:17	24:18 25:15	120:9 122:16
receipt 359:17	321:1,9	119:16 179:16	50:8 58:14	122:18 124:6
receive 137:15	reference 5:8,18	195:1 199:5	60:12 61:9,13	131:17 141:24
162:10	25:24 43:22	200:24 215:8	61:16,19 62:12	143:24 144:6,8
received 142:8	46:8 173:3,6	250:4,23	93:4 101:8,9	145:13,15,18
142:19 143:10	191:1 222:11	254:19 265:2	112:23 238:13	145:20,23
158:14 160:1	245:16,18	267:17 276:15	238:15,16	149:11,21
161:15 162:10	246:1,12,15,19	286:2,9 306:1	241:4 263:12	150:19 151:19
recognize 10:19	247:15,22	refers 24:1	265:10 266:23	162:5 168:19
117:2 156:7	248:16 250:10	250:9,13 251:3	268:16 280:10	169:6 193:3,8
205:9 255:23	251:7,11,14	251:17 295:16	306:17 345:24	199:20 208:3
257:3 276:2	252:24 263:23	333:4 337:19	relatedness	210:12 224:5,6
279:1,1 324:23	264:23 265:16	337:19,20,20	327:11 328:11	224:9,12,13,15
recollection	266:14 267:10	341:12	relates 1:8 15:15	232:6,17
143:13 158:13	267:12 277:3	reflect 111:17	20:19 24:23	233:12 236:5
177:2 185:12	285:7,8 287:6	reflected 218:23	25:9,12 45:17	240:15 252:7
214:22 215:22	287:10,16	302:22	57:11 198:16	254:24 255:5
216:2 258:24	291:19 292:2,5	reflects 279:6	218:18,20	274:22 291:2
290:5 322:15	297:6 315:13	346:7	272:9	291:13 315:5
reconstruct	316:12,20	refresh 143:12	relationship	322:21 323:2,4
109:7	320:19	322:14 355:9	65:4 75:14	323:6,21
reconstruction	referenced	refreshes 258:24	77:14 288:10	remembered
121:23	222:9 265:12	refuted 305:4	302:17 310:7	148:14
record 9:3,16	266:9,11	refutes 305:6	331:19,23	remembers
84:22 85:6	references 26:12	regard 55:23	341:15	141:23 144:10
117:9,12,16	26:16 246:18	141:13 216:18	relative 195:12	render 103:20
142:4 155:2	248:2 282:6,7	304:4 312:5	relatively 76:15	rent 36:17
156:22 184:5	282:11 283:7	regarded 141:13	76:18 282:19	repeat 124:16
228:15,21	285:15,19	regarding 21:2	295:22	239:23 275:12
250:22 265:1	287:22 290:11	22:14 30:24	relevance	repetitive
332:5,8 342:9	referencing	194:14 304:1	220:18	221:24
352:23 356:10	254:18	349:19	relevant 16:15	report 5:6,21

16:3,4 25:20	223:15 224:8	344:1,18	requested 116:9	339:19 340:22
25:21 26:4,10	224:10,18,21	345:10 348:5	358:7	Responses 14:2
26:12 29:8,10	229:3 231:13	349:13 350:23	required 46:22	responsible
29:11 30:4,9	232:1,4,7,8,10	351:21 353:24	167:5 203:22	47:11,23
30:10,13,17,19	232:19 233:19	reported 66:2	requirements	107:23 180:15
41:7,16 43:13	234:18 235:5,7	337:24	40:18,19	180:16 181:18
43:16 65:17,23	235:20 236:21	reporter 1:16,16	research 15:14	rest 267:4
99:4 115:24	237:2,12,16	1:17 9:17	15:18,21,23,24	restate 319:23
128:10,16	238:24 240:24	12:18 116:9	18:18 24:18	result 91:5 94:5
157:4 161:23	241:10,12,12	176:12 358:13	25:5,7 50:19	100:11,14
163:8,23 164:9	241:17,19,20	358:14,14,22	51:1 58:13	240:20 259:18
164:12,13,19	242:2,6,9	reports 5:12	60:19 62:16	260:6 354:3
172:6,14,24	244:12,14,18	22:22 24:3	68:16 120:8,13	resulted 338:8
173:12 174:15	244:21 245:9	27:4,19,21	120:18,23	resulting 97:3
174:15,17,18	246:4,7,11,16	28:7,10,22	121:4,8,17	results 254:5,9
174:19,21,22	246:23 248:1,4	29:19 41:8	141:5 276:20	259:18
177:20,22	248:11,15	64:12 85:22	292:23	resumé 125:18
179:17,19,22	249:5,10,11,18	97:22 107:20	researching	retain 53:19
180:20 181:1	249:21,24	109:20 110:15	226:13	retained 16:20
181:16,23	250:4,9,24	182:18 211:9	resemble 182:4	24:11 97:2
182:7,11 183:9	254:6 261:24	212:2 217:14	182:17,19	99:17 108:20
183:10,12,15	262:4,7,8	223:3,7,17	resembles 182:1	108:23 176:6
184:2,7,7,10	263:2 264:10	226:8,10 227:1	residency 33:19	177:3 237:24
184:11,16,23	265:8,13,17,22	235:15 242:20	34:9,12	retrospective
184:24 185:8	266:2 267:4,8	263:12 265:9	resident 70:18	220:23
185:10,15,21	267:18,24	283:24 328:24	resources	return 359:15
185:23,24	268:7,13	345:23 352:18	122:24 281:17	review 18:8
186:11,15,18	269:18 270:20	represent	283:10,14	20:23 30:13
187:7 191:4	277:16 278:2	118:12 142:8	respect 23:17	92:1 93:7
192:13,21	280:24 285:9	representative	26:24 216:23	114:8 134:7
194:22 196:18	285:16 290:11	112:17	339:14,17	143:22 166:12
197:23 198:1,3	292:3 293:13	representatives	340:20 344:6	173:18 194:1
198:11 199:14	293:14,20	17:17	respected	195:4,11 196:4
201:5,19 202:5	295:5 296:6,10	represented	225:23 226:5	198:6 208:11
204:1,1 205:10	297:8,22 300:4	92:5 109:13	respirators	214:4 231:20
205:14,17,20	300:23 301:2,7	111:7	96:12,24	244:9 252:11
206:1,7,17,24	303:10 304:13	representing	respiratory	271:22 272:4
207:15,20	304:18 305:5	2:16,20 3:5,10	122:3	279:21 333:21
208:9,13 209:1	305:10,15,16	94:6,18 99:21	respond 30:19	350:14 354:1
209:10,18	311:6 312:8,19	represents	responded	reviewed 27:14
212:4,12,13,14	313:9 315:11	191:7	13:20 103:1	27:15 54:20
212:18 213:11	315:23 316:19	reproduction	responders	93:13 200:4
213:24 216:20	317:3,8,21	358:20	86:21	224:20 225:2,5
217:2,9,16	320:20 321:13	reputation	responding	234:17,23
218:8,18,20,24	327:19 332:13	141:7	345:12	235:1,5,6
220:4,8 221:18	334:12 335:1	request 8:8	response 68:5	237:14 240:5
222:9,17 223:2	342:17 343:24	24:21 230:16	77:15 102:14	240:12 243:3,8

252:11 265:10	173:11 174:10	64:3 69:12	90:19	247:3 250:14
270:1 279:11	176:11 177:14	87:18 113:3	Russi 73:8,16,18	260:6 264:15
280:19 281:18	178:19 179:24	121:12 216:24	S	264:18 277:3
333:17 351:24	181:24 182:12	217:1 219:10	S 4:10 5:2 6:2	285:1,4,5
353:19	182:16 183:2	220:16,16	7:2	288:7 293:3,5
reviewing 224:7	185:7 187:20	240:8 247:9	safety 88:8	303:11 311:23
224:9 342:7	192:12 193:11	252:4 257:15	89:13 328:15	324:22 327:9
reviews 89:22	196:8 197:18	257:23 258:8	329:16	327:10,15
354:3	197:22 198:15	273:14 275:5	Saint 3:9 37:11	328:21 334:24
revised 207:4	200:11 205:22	276:9 278:9	37:23	335:17 337:15
269:12,14	206:14,23	297:10 303:17	sake 145:6 179:8	337:23 338:3
revising 187:7	207:16 213:23	306:15 312:3	Salem 65:18,20	338:22 339:12
revision 184:1,6	219:18 220:2	313:18 315:17	65:23	341:11,17
revisions 182:10	223:5 230:4,16	316:22 319:15	SALES 1:6	343:12,16
rgolomb@gol...	233:4 234:3,16	338:8,13	salient 123:4	scenario 105:5
2:5	234:19 236:13	342:10 355:23	283:18 293:21	Schildkraut
Richard 2:3	237:7 242:20	risks 73:8	SANDRA 3:8	321:6 322:3
10:8	245:6 247:19	259:11 260:9	Sandra.wund...	school 33:11
right 10:17 12:8	247:21 248:5	260:10 293:4	3:10	35:7 38:5
13:5,16 15:12	251:12 253:10	Ritesund	sat 148:12 241:8	46:22 52:18
20:3 23:5,20	261:11 262:20	254:18,20	saw 59:15 91:24	71:5 108:16
25:19 26:6,14	262:24 264:12	Rmm@meneo...	142:20 154:14	123:7
28:5 31:14,23	267:16 268:5	2:15	155:17	schools 46:24
33:4,6 37:13	273:11 275:23	Robert 33:2	saying 44:23	science 103:14
38:17 41:5	276:21 277:5	role 98:9 194:2	48:4 116:3	348:6,20
42:9 43:1 45:7	278:10,19	272:9 322:15	140:8 155:16	sciences 6:21
45:15 47:22	280:6 284:23	RON 2:13	174:14 197:3	354:7
48:12 53:7	285:3,5,18	room 87:19,21	199:7 214:24	scientific 14:22
62:24 63:23	288:15 289:10	90:20 91:7	238:6 248:18	15:9 17:7
66:14 80:8	291:1 294:16	156:4 253:6	251:21 299:14	29:18,19 85:21
81:6,21 88:13	299:24 304:10	Rosenblatt	342:16	107:6 109:19
88:14 101:1,4	305:13 310:11	311:16 313:3,6	says 22:10 24:17	110:15 114:9
104:22 105:2,8	310:14 320:24	Rothman 55:13	38:9 40:23	139:8 195:6,12
106:9,21	323:4 324:20	55:24 267:4,10	44:10,15,24	196:5 204:4
109:18 110:3	325:20 326:18	267:12 268:6	45:2 62:3	304:21,23
110:13 111:4	327:14,22	268:11 269:5,7	85:24 86:2	309:12 348:20
115:16 119:21	328:5 329:6	270:9,18 271:2	107:19 108:5	350:3 352:20
120:2,22	330:3,14	271:6	120:7,23 121:1	scientifically
125:23 132:22	332:17 338:11	Rothman's 56:7	121:2,7,15,16	128:2
136:4 137:5,14	341:8 342:20	57:10	128:20 131:22	scientists 256:17
138:8,8 139:16	343:13 345:11	roughly 156:13	176:2 178:5,9	scope 112:4
144:16 145:5	346:12 352:16	Royal 33:20	178:13 206:24	screening 6:10
149:8 152:4	354:4,9,16	Royston 3:11	207:11,13,14	113:12 336:16
153:3,22	right-hand	rubber 73:4,9	209:19 215:15	screwing 293:23
159:17 160:11	85:14 246:3	ruling 22:11	215:18 216:6	294:6
164:2 168:15	259:13	23:8,21 24:4	220:13 242:24	scrotal 310:5,12
170:24 172:3	risk 39:4 46:21	running 59:14		seafood 64:15

112:9	311:21 317:13	208:10 209:6	seven-page	207:11 246:11
search 6:9 64:18	322:18,19,20	212:4 235:16	255:17	249:23 315:7
259:14,17,17	327:12 328:7	sentence 181:1	SEYFARTH	signed 213:12
259:18 324:1	335:9,14,15	247:3 334:11	2:17	significant 5:10
searches 239:17	336:8 337:15	335:13 355:22	shared 51:17	36:15 273:14
seated 10:16	338:21,23	separate 95:8	52:4 56:3	275:4 297:10
second 62:19,24	339:15 346:17	142:9 173:7	SHAW 2:17	297:24 315:17
76:5 113:4	355:18 356:20	245:4 273:13	sheet 359:7,9,12	316:21 318:10
183:10 184:24	seeing 77:8	274:21 275:3	359:15 361:12	318:12 335:21
235:23 245:7	356:21	275:24 276:8	shelf 268:23	338:9 343:9
246:24 264:7	seen 13:2,14,23	279:14 345:20	269:11,15	signing 359:10
278:4,16 320:7	14:7 27:18	350:12 352:20	SHOOK 3:2	silica 97:3,19
334:10,10	71:14 75:11	separated 206:1	short 56:3	121:23
335:11,12	80:5 156:14	series 144:19	117:14 168:22	similar 76:21
339:13	169:19,23	287:19	332:6 356:5,11	130:12,12
second-to-last	171:2 255:18	serious 296:2	Shorthand 1:16	203:2 312:5
341:7	255:24 298:1	Serous 6:20	358:13	similarly 182:7
seconds 153:11	325:1	354:6	show 13:5 73:11	simple 97:17
section 245:4	sees 144:15	serve 141:18	112:13 128:19	114:2 177:23
262:8,10 273:6	selected 110:16	160:2 237:24	132:24 142:16	188:17 215:7
339:9	119:17 120:4	served 89:6 90:6	142:24 154:8	243:20,21
see 14:4 18:1	120:17 123:16	90:8 127:22	159:22 204:14	simplistic
29:4 37:5	124:3	301:8 325:16	215:2 216:4,13	134:16 174:6
49:19 61:6	selects 123:21	serves 140:23	255:15 274:13	simplistically
62:5,11 63:9	self-promoting	service 6:17	294:2 297:9	134:21
75:10 77:17	139:6	91:14,20	303:4 314:20	simply 128:6
85:16,23 94:15	semantical	services 1:20 9:5	317:3 319:15	196:16 238:18
118:23 120:7	309:11	37:11 86:16	showed 273:13	248:11 249:7
120:19 121:5	semester 46:9	87:13 88:4,5,7	275:4 276:9	264:20 304:3
135:17 137:6	46:15	88:15 91:4	278:8 296:24	308:19 345:15
141:23 142:6	send 91:24	99:17 127:15	315:16 316:22	Singh 42:23
148:8 156:13	134:10 136:18	139:2,13,17,18	shows 115:19	43:5 162:3
157:20 158:4	138:19 139:19	140:11 141:8	119:24 320:10	single 46:19
159:19 169:10	211:8 212:21	159:2 160:9,12	Shusan 321:1	113:19 305:15
169:16 174:23	212:24	333:15	side 326:10	sir 10:5 11:3
181:10 220:11	sends 230:1	serving 193:1	sides 22:23 92:5	12:7 49:21
231:1,2,5	sense 36:20	194:9	sideways 157:19	50:10 62:20
249:20,23	75:13 114:16	set 76:6 142:12	Siemiatycki	70:3 82:19
254:23 258:23	139:6 236:24	142:14,19	41:12,15 42:17	83:6,11 116:5
266:3 268:2	241:20 320:1	329:15	161:24 224:22	128:20 177:2
269:10 275:10	333:15	sets 40:2	225:10 301:4	206:22 237:10
275:14 276:11	sensitivity 69:23	setting 77:7	301:18	237:13 250:1
276:14 277:1,3	sensitization	settings 69:8	sign 201:19	252:22 301:23
277:5,9 284:20	122:4	seven 14:18	358:9 359:8	312:11 332:24
288:4 293:7	sensitized 69:17	73:14 114:14	signature	sit 114:13 228:2
295:16 296:12	sent 14:8 109:2	118:10 285:10	172:16 206:8	site 63:4 110:14
302:4 303:5	109:3 130:4	343:23	206:21 207:8	sitting 174:2

230:16	173:17 202:17	speaks 242:2	specified 248:9	340:12,20
situation 72:9	208:11 210:2	264:13	speculate 201:2	349:19
situations 90:4	210:11 213:16	Specialists 4:17	speculating	statements
six 11:11,15	241:3,23	specific 16:8	201:1	203:16 249:13
73:14 114:14	son 91:17,21	23:13 35:24	speculation	250:15,17
118:9 352:19	Sonal 42:23	40:22 41:2	146:1,5	281:16 282:18
six-page 84:24	Song 225:1	42:17 54:3	spent 32:16 36:7	287:19,23
85:4	sorry 13:18 36:9	56:23 57:5	36:10 59:12	334:1
skepticism	42:11,21 44:14	60:20 64:10	131:22 171:12	states 1:1 62:17
288:8 302:3	55:15 62:21	123:9 129:21	171:18 175:6	105:9 295:24
skier 34:2	73:10 83:17	143:19 151:9	spoke 67:1	stationary
skills 36:20 98:1	84:8 86:4	167:11 183:11	91:22 125:17	132:16
Slade 73:8,16,18	105:11 115:7	201:6 202:11	154:6 167:17	stationery
slips 135:11,13	127:12 151:1	216:1 219:10	spoken 167:16	136:13
135:14,18	151:21 153:9	224:2 270:4	St 253:16	statistical 275:4
sloppiness	167:2 176:11	273:21 282:20	stand 108:4	319:15
206:15	186:6 190:15	291:3 299:17	standalone	statistically 5:9
sloppy 207:22	198:8 234:10	345:17 347:15	345:20	273:14 297:9
small 343:8	241:14 256:21	353:17	standpoint	315:17 316:21
smart 56:1	262:1,5 265:4	specifically	44:20 45:16	318:10,12
smile 144:13	276:6 281:10	16:11 19:5	217:7 219:13	335:20 338:9
smiled 142:6	281:14 284:8	31:10 40:9	307:18	343:9
Smith-Bindman	302:14 306:4	42:5 43:6 44:7	standpoints	statistics 99:9
42:10,13 162:2	315:19 316:1	45:18 48:5	354:8	290:8
224:5	323:1 324:6	50:7 57:7,19	stands 199:20	stayed 37:24
smoke 80:5 81:8	328:3 332:15	60:3,10,12,22	start 177:8	steady 76:19
smoker 310:16	345:3	62:12 63:12	232:1	steeped 64:20
310:20	sort 53:20 122:1	64:6 71:12	started 86:10,13	stenographic
smoking 80:9,19	122:24 125:2	78:1 87:4	176:5 232:18	9:16
310:24 311:4	156:11 165:24	107:16 123:18	308:1	stenography
356:1	332:16	128:4 135:2	starting 202:7	91:16
snapshot 258:17	sorts 112:14	148:16 150:5	starts 335:16	step 73:24 89:9
258:20 259:19	sound 255:2	152:11 159:5	stat 295:17	275:9
260:6,8 261:11	290:12 291:1	161:20 168:18	state 76:19 94:4	stepping 82:18
261:15	sounds 106:21	169:6 177:3	103:13 196:16	steps 232:12
snapshots 257:6	111:11 172:3	193:8 195:15	223:16,19	stick 150:5
Society 51:1,4	255:4	221:21 223:23	253:16,16	stint 45:4
software 108:21	South 3:8	227:7 232:12	359:5	Stipulations
109:4	space 52:4 53:8	248:3 263:22	stated 301:7	8:11
sold 96:22	359:6	269:23 270:15	statement	stop 107:12
solid 303:2	span 164:21	286:6 295:11	192:16 222:21	108:9
somebody 80:19	speak 129:10	339:18 340:21	230:5,21 243:1	stopped 108:10
102:8 108:24	299:21	343:16 346:17	247:4 250:21	stories 56:3
109:1 127:6	speaking 12:19	specifics 35:12	273:22 274:9	straight 202:19
129:11 135:7	12:24 74:11	150:19 153:23	288:16 289:8	Street 1:14 2:4,9
145:15 146:9	111:13 146:13	161:10 164:6	291:13 304:1	2:14,18 3:8
151:15,16	147:5	164:24	313:15 314:4	53:1

strictly 74:11	227:2,19	subsidiary	84:23 89:2	T 2:18 4:10 5:2
strike 124:21	233:13,14,17	96:22,23	106:5 120:20	6:2 7:2 360:1
164:4 297:24	234:1,5 240:21	substance	130:15 132:13	T-A-H-E-R
stronger 311:18	240:22,23,23	165:23 166:10	139:9 142:1	341:9
312:21 313:24	240:24 273:23	166:14,15,22	155:12,19	Tabershaw
strongest 349:18	277:12 288:22	167:2 168:12	166:1 175:14	328:2,4
structurally	289:11 291:5	361:11	185:2 211:11	table 170:2
274:2	301:20 306:23	substantial	218:1 224:2	202:18
structure 182:2	311:16,17	309:2,5,6	227:3 228:10	Taher 337:21
student 36:15	317:19,20,23	subsume 40:4	228:13 229:17	338:4 341:8,12
students 47:14	318:6,16,19	subsumed	230:6 232:23	342:9,22
52:8	320:7 327:24	321:16 322:3	239:20 249:19	343:15
studied 32:24	339:9 352:20	succinct 289:8	251:24 293:22	take 12:10,10,13
studies 5:10	studying 226:12	sufficient 76:18	315:14 317:5	12:15 15:12
25:12,17 26:3	stuff 92:20	308:16	332:16 339:10	20:12 24:16
26:9,17,17	125:18 234:17	sufficiently	343:18	31:14 39:22
27:1,2,7,15	235:6,7 236:5	68:10	surprise 140:2	40:6,20 51:20
28:12,13 29:15	238:21,23	suggest 285:2	surprised 42:7	66:15 85:3,3
39:5 74:6 75:6	239:5 269:4	296:4	159:23 160:10	94:19 108:8
75:7,8 76:6,12	stupid 187:13	suggests 99:4	188:1 229:18	116:16 117:9
107:6 108:17	stupidity 187:17	306:13 343:8	229:20 254:8	117:23 154:17
202:15 203:2,8	subheading	Suite 2:4,9 3:8	258:3 264:3	163:7 166:3
220:21 234:7,8	273:4	summaries	300:21	167:20 168:16
234:9 241:5	subject 22:14	175:12	surprisingly	172:5 174:12
273:13,24	24:3 176:21	summarize 29:3	74:24	175:4 188:3
274:6,21 275:3	177:1 187:19	summarized	surveillance	201:3 204:16
275:11,15,24	359:10	244:18	121:10	205:1 206:19
276:9,19	subliminal	summary	susceptible	228:9 252:24
290:10 294:18	112:19	303:11 304:8	121:13	253:6 278:20
297:9 312:4,6	submit 229:23	304:13,17	suspect 240:21	311:9 332:1
315:16 316:21	345:19	348:6	swear 9:18	345:21 354:22
317:11 318:10	submitted 95:3	summer 22:21	sweep 310:12	356:4,5,6
319:14 320:5	95:3	supervision	sweeps 310:6	taken 1:13
321:10,16	subscribe 54:5,9	358:22	sworn 9:22	253:15
326:14,20	54:13,17,22,24	supplement	358:5 361:19	takes 177:16
328:22 335:19	55:2,4,7,9	207:19,24	Sylvania 65:19	214:2
337:16,24	148:10	209:2 351:22	65:20	talc 7:7 10:12
338:5	Subscribed	353:24	synopsis 335:9	11:1 15:3,10
study 24:19	361:19	supplemental	335:12	15:16,21,24
38:19 64:5	Subsection	6:14 206:17	synthetic 77:12	16:11,13,17,23
65:12 66:18	231:16	351:21 352:13	system 212:7	17:20 20:19
71:8,11,15,24	subsequent	support 8:2	systematic	21:2,12,12,16
72:3,13,16,21	235:17,18	247:7 311:24	25:18	21:17,19,23
74:16 75:2	321:17,20	supported 59:13	systematically	22:3 24:23
77:11 99:5,7	subsequently	suppose 236:16	49:4	25:9,13,15
101:20 160:21	36:16 322:7	sure 11:16,17		29:21 31:1,6
160:24 161:2,4	subset 60:22	40:12 57:18	T	31:11 44:2

48:24 49:2,13	175:20	151:13 153:15	78:6 258:17	textbooks 271:9
49:14 103:15	talcum 1:5 9:11	153:19,21	263:21	thank 10:10
127:23 141:18	15:3,4,16 16:8	154:20 169:11	terms 38:8	12:16 14:6
145:7 146:16	16:21,22 17:10	169:19,24	68:22 89:11	22:18 37:8
146:17 147:21	17:19,20 21:2	171:3 201:12	129:5 239:21	62:23 84:2
148:15,20	24:22,23,24	212:14 229:24	282:10 293:21	119:1 172:11
149:4 150:1	146:23 271:8	230:1	Terry 240:21	188:4 200:1
152:13 158:19	talk 52:10 68:18	task 239:21	319:8 337:19	205:4 222:24
158:22 159:1	78:9,10 85:11	taught 45:19	test 12:12	229:21 244:8
171:13 175:10	86:7 91:20	46:14 47:9,12	113:11,12	253:3 281:5
175:11 176:23	104:17 147:23	48:5,21	testified 9:23	317:16 324:12
177:1,5 191:8	148:1 168:24	teach 38:24	10:11 11:7,19	333:3 356:18
193:14,22,22	190:23 191:3	46:10 292:7	11:22 12:6	356:19
194:15 196:14	193:10 200:11	teaching 47:15	27:21 94:15	Thanks 31:24
198:18 203:13	229:6 245:7	58:14 114:4	95:12,15 98:6	therapeutic
203:17 204:5	320:4 334:22	220:17	99:13 103:24	354:7
217:6,8 223:5	356:7	teachings 49:6	104:6 105:2,6	thereof 21:4
225:16 226:14	talked 231:18	technical 6:16	106:3 193:5	thing 24:15
228:4 238:14	305:11 313:16	14:23 15:9	testify 22:13	125:1 157:8
238:15 239:17	talking 90:17	17:8	23:9 24:13	193:13,20
239:18 240:1	91:10 93:21	TECHNICIAN	43:24 88:21	198:5 203:7
247:8 252:4	151:15 163:13	3:15	90:3 189:2	206:20 298:13
257:15,23	166:9 183:8	telephone	testifying 27:22	312:24 330:3
258:7,8 260:11	195:24 200:13	168:16	27:23	things 14:17
262:15 273:16	227:16 229:2	tell 40:11 47:6	testimony 4:4,23	16:14 26:3
275:6 276:1	234:6 238:19	56:22 61:23	5:12 11:1	30:18 93:13
279:10 281:23	275:12 315:19	62:10 87:5	22:23 24:2	97:8,24 105:13
282:14,16	315:22 318:20	92:2 119:21	42:10,12,20	111:13 112:14
285:2 288:12	323:20 328:1	122:19 142:2	43:2,16,19	123:3,20 140:8
291:9 297:11	329:20	143:7,18	93:8,14 95:2	143:6 173:19
302:18 303:13	TASA 4:16 6:17	145:16 146:2	100:1,4,17	203:16 225:6
303:18 305:20	124:23,24	150:23 151:24	104:18,19,21	238:12,13
306:14 316:23	125:7,10,16,21	194:24 224:17	116:10 166:11	252:24 257:6
319:16 334:5	125:24 126:5	227:15 254:9	190:8 218:18	294:2 318:21
335:22 336:17	127:3,23 129:4	254:12 268:4	218:21 230:20	332:16 351:12
338:2,7,14	129:11,22	314:18	236:5 252:12	353:19
339:17 340:20	130:18 131:2,8	telling 151:11,23	254:5,19	think 11:24
341:4 343:11	132:7,17,19	153:23 164:6	256:15 263:12	14:11 19:5,19
348:21 349:20	133:21 134:1	187:8 207:21	264:14 265:9	20:7,8 23:1
353:11 356:1	134:11 136:18	325:6	266:10 274:20	26:5 41:4 43:3
talc-based 293:5	137:3,6,8,11	Temple 1:14	283:24 284:1,5	43:21 56:2,4
talc-containing	137:16,18	ten 37:2,4	284:10 298:17	57:6 58:19
195:14,20	138:9,13,19	ten-page 204:1	322:2 345:23	65:18 67:13
219:7 240:2	139:16 140:10	ten-year-old	358:6	68:8 72:14,18
272:2 312:16	140:23 141:1,5	111:17	testing 24:19	79:2 82:23
344:9	142:10 145:15	tenants 285:2	25:9,10	87:10 88:13
talc-related	148:13 150:14	term 16:2 69:22	text 248:21,23	101:14 104:4

108:18 112:3	282:1 283:17	149:7 154:15	165:5 356:24	train 39:7
128:3 131:11	292:6 293:23	154:17 155:17	told 95:24	trained 35:6
131:14 132:8	300:5,20	158:15 164:13	164:21 178:19	training 34:14
132:11 140:17	318:20 333:12	164:21 167:5	180:13 185:22	34:17 36:2
152:1,2 155:23	348:15 353:6	170:5 171:22	268:20 317:12	38:2 70:10,11
171:9 177:13	thoughts 22:2	174:20 175:6	326:19 350:1,9	71:5
185:1,6,9	three 14:11	178:2 191:24	Tom 31:19	transaction 97:2
194:12 196:9	52:19 55:21	206:20 228:9	195:10	transcript
197:5 199:7	73:13 100:17	228:15,22	top 120:7 206:24	214:17,18
200:8 208:1	100:20,22	238:19,20	207:17 209:19	215:10 264:14
210:9 225:2	101:1 107:14	239:14 280:7	284:21 324:23	358:9,19
227:4 233:10	114:13 134:6	288:24 289:5	325:15	359:17,19
233:18 234:2	163:20 167:16	298:22 305:3	topic 296:2	transcription
248:19 249:12	172:1 215:23	311:11,20	topics 112:10	361:7
251:24 255:22	215:23 295:4	331:9 332:2,5	134:8 220:18	transcripts
255:23 256:11	322:7 338:6	332:9 342:17	torture 12:12	235:15
257:19 264:2,6	352:19	354:20 356:10	total 45:22	transition 183:9
267:5 270:22	three-quarters	356:14 357:1	133:6,6 158:4	transmittal
283:9 284:3	251:2	times 11:7,21	229:18 231:3	211:7,7 212:3
286:1 288:18	threw 352:24	88:17,21,24	totaled 157:17	212:6
291:12 294:23	353:9	89:8 90:5,8	totality 305:14	transparently
296:2,4 297:23	throw 109:7,8	93:3 98:6	309:14 344:2	294:2
298:10 301:6	208:8	104:3 125:22	348:4 350:20	trauma 59:15
301:11 307:13	throwaway	127:12 131:9	350:21,22	90:19
309:1,20 310:4	354:13	133:2,3,17,18	351:5	treated 91:6
315:9 318:5	Thursday	136:15,16	totally 109:6	treating 92:22
322:8,22	214:19	167:16 181:11	totals 6:13	tremor 77:3,8
323:22 325:22	ticket 39:6	241:1 266:7	158:11	trial 4:23 11:19
326:19 328:20	till 34:5 204:24	Tisi 170:23	touch 294:20	11:22 70:8
330:11 333:13	time 9:7 12:8,19	title 38:14 53:23	town 144:17	95:2,15 99:13
343:19 352:15	12:24 23:7	60:4 263:14	toxic 63:3	101:2 104:20
354:9	30:10 37:16	titled 273:6	121:11	105:2,6 106:4
thinking 105:12	38:8,13 48:13	tlocke@seyfar...	toxicants 61:22	252:11,15,21
114:7 128:2	48:13,18,18	2:20	toxicokinetics	254:4,5,9
283:3 300:11	59:12,17 65:11	today 10:9 11:2	220:15	255:12 284:1,4
303:7	66:11 67:2	11:5 27:23	toxicologist	284:10
third 113:6	76:7,16,18	95:6 103:4	32:15 71:19	trials 70:14,18
211:9 212:4	77:15 83:13,23	115:4,19	127:18 129:9	252:23,24
260:8 277:2	89:3 93:15,19	118:18 125:6,9	toxicology 40:4	253:12,15,22
342:17	94:11,14	125:11,13	40:21 46:20	260:18
thirty 359:16	111:19,22	132:9 165:4	50:2 59:3	tried 100:9
THOMAS 2:18	112:1 117:12	171:22 214:6	112:24 113:3,5	252:18
thought 36:21	117:18 124:4	217:15 218:21	121:9 217:6,8	trivial 187:14
111:14 139:5	131:14 135:11	228:2 236:6	220:14	true 43:10 50:12
179:21 225:12	135:13,14,18	253:7 314:9	track 29:11	58:19 122:10
263:9 268:1	141:17 142:21	351:12	31:20	123:12 216:3
275:16 281:18	143:2 147:8	today's 9:6	trade 17:18	217:13,15

218:17,19	293:21 333:22	109:3 128:8,17	120:16,18	41:8 49:23
235:13 257:4	334:1 352:19	128:23,24	177:21 182:9	63:17,20 75:12
274:10 310:19	two-and-a-hal...	130:16 145:2	210:24 241:23	162:8 199:13
330:12 358:6	263:18	165:21 169:15	updated 118:5	203:1,15,23
truncates	two-hour 101:7	175:8 181:19	118:14,23	244:19 299:17
171:17	two-hour-long	183:3,23	119:11 120:4	319:14 334:6
Truthfulness	169:3	187:18 188:8	186:10 241:13	verbatim 182:19
267:19,21	two-sided	188:22 194:6	352:2	185:16
try 54:4 75:13	172:13,22	199:12 203:12	updates 108:22	verdict 100:15
85:5 114:15	two-year 238:19	227:21 237:5	122:17	verify 231:9
192:5,7,8	type 74:10 87:15	238:5 246:14	updating 119:15	version 118:5,7
239:20	183:15 259:14	250:5 252:16	186:1 242:18	243:5 269:15
trying 72:18	270:23 275:16	263:15 266:19	351:23	333:8
74:19 77:13	275:18	277:23,24	upper 259:13	versions 55:20
104:8 105:13	typed 181:14,15	279:19 292:20	usage 356:1	270:12
105:14 113:19	186:11,13	303:7 319:3	use 35:20 47:14	versus 96:4
126:19 183:3	187:2	348:13	64:15 82:12	165:23 220:21
186:7 266:7,13	typos 173:18	understanding	115:13 138:14	220:22 314:16
277:21,22		20:2 23:10	146:17 191:16	338:7
309:11	<hr/> U <hr/>	64:23 189:12	195:13,19	Victoria 33:20
TUCKER 3:7	ultimate 31:5	190:4,20	219:6 240:1	video 9:8 91:13
tumor 339:20,24	65:13	203:22 253:13	243:10 252:3	155:2
340:23	ultimately 174:8	288:11 299:9	258:7 262:14	videographer
Tumors 73:8	194:18 353:10	understood	263:20 272:2	9:2,4 117:11
turn 46:4 157:10	353:12	151:6 194:19	273:15 275:6	117:15 228:14
255:8 328:12	unable 30:14	197:23 296:23	281:22 285:2	228:20 332:4,7
turned 53:17	uncertain 204:6	334:15 350:17	291:9 293:5	356:9,12,23
353:11,12	327:10	undertake 161:7	297:11 303:17	VIDEOTAPE
twice 11:24	uncertainty	undertaken	305:20 306:13	3:15
105:21,23	302:23	15:15 70:19	312:16 316:23	Videotaped 1:13
269:13	unchecked	Unfortunately	319:16 334:5	view 56:17,19
two 16:2,6 40:2	331:9	269:10	338:7,14 344:8	57:3 304:4
55:20 62:11	unclear 21:13	Union 3:11	346:9 348:7,21	viewed 288:8
63:11 64:1	32:18 265:6	United 1:1 62:16	useful 353:3,6	302:2 329:1
73:13 74:3	275:13	295:24	usually 76:13	virtue 41:7
76:11 84:24	unclear.' 328:12	University	236:11	vitae 4:15 32:4
100:19 101:5	underlying 27:6	44:13 178:11		volume 330:18
106:8 111:6	69:13 74:13	unlimited	<hr/> V <hr/>	
114:13 142:9	294:7,12,17	331:10	vacation 171:16	<hr/> W <hr/>
156:8,9 163:20	underneath	unproven 204:6	valid 64:13	wait 133:10
167:15,16,19	121:3 293:4	289:9	validity 113:11	wall 40:22
167:19 168:24	327:14	unpublished	valley 331:6,8	Wambeck 99:3
171:15,18,19	understand	267:3,15,18	variety 94:15	Wanda 314:15
172:1 182:17	22:20 23:6,18	268:13 269:18	202:22	322:16,19
203:10 221:13	23:22 28:15	Unrelated	various 20:13	want 12:9,13
224:23 229:8	32:6 79:5,9,14	118:17	26:8 27:19,20	14:16 15:5,5
250:2 291:6	102:5 104:22	update 119:3	28:11 39:19	15:20 16:24

17:10 21:5	waste 63:3 83:13	223:8 274:13	weeks 171:15	139:24 140:15
25:1 30:17	water 116:24	296:14 305:11	174:13 229:8	141:11 143:18
84:23 98:15	way 12:22 19:11	314:21 344:20	weight 56:8	146:21 149:1
104:16 110:23	24:5,7 25:18	354:23	247:6 271:14	149:17 150:4
118:22 125:9	27:22 47:10,24	weak 288:9	272:5,10	150:18 152:17
134:18,19,19	48:22 65:21	web 5:20 123:6	well-published	153:5 159:4
139:21 143:8	71:11 74:15	292:10 293:11	268:20	160:17 161:19
144:18,21	80:18 138:11	347:21	Wellman 106:15	162:18 163:16
145:13 151:8,8	138:12 140:5	webmaster	went 33:10	172:11 173:8
151:9,10	143:4 182:14	108:19	37:24 120:3,15	176:18 180:13
156:16,18,21	191:15 197:3	webmeister	120:16 122:11	181:9 182:23
159:19 164:24	203:11 238:1,5	108:15	123:16 186:2	183:17,23
165:1 166:2	238:10 251:3	website 4:21	187:9 229:4	186:23 187:23
189:18,19	266:8,10 283:2	84:10,13 85:8	230:17 233:3	188:13 189:6
190:3 193:10	283:3 288:21	85:10 107:4,10	236:21 286:17	189:22 190:19
193:24 194:2	295:12 296:3	107:13,24	326:21	194:5,12 196:3
196:9 204:24	304:13 320:2	108:8,9,15	weren't 31:4	197:5,15 198:8
205:12 215:2	321:24 333:12	109:7,10,12,15	103:9 261:17	198:22 200:8
217:12 218:4	338:19 340:13	110:8,17	299:3 342:1	200:18 201:16
222:24 229:5	ways 161:13	111:24 112:2	whatsoever 20:4	204:10 205:4
243:24 293:15	we'll 11:13	116:17 117:6,7	50:7	208:21 209:7
315:14 316:4	12:14 26:14,15	117:22 118:20	whichever 11:20	209:22 211:22
317:5,7 325:2	30:8 66:14	120:6,16	Whoa 158:16	212:17 213:19
332:3 344:18	83:17 85:4,11	122:12,19	wife 36:16 168:9	218:13 219:2
346:16	142:23,23	123:20 242:10	wind 331:6	219:22 221:8
wanted 86:19	154:17 159:9	243:4,6,9,16	witness 8:5 9:19	221:15 222:4
111:4 116:22	159:18 171:1	244:10 247:16	27:10 28:1,20	222:13 223:11
120:12 135:17	191:16,16,18	248:6,12,13	30:2 31:9	226:2,18
152:12 194:8	192:4,4,5,8	249:8,9,13	40:16 41:23	227:11 232:3
229:16 230:5	193:9 205:1	250:10,13	44:6 46:13	232:21 233:6
230:24	230:8 245:8	251:18 256:4	48:8 50:10	234:13,22
wants 137:11	254:3,3,13,13	257:7 258:18	56:12,22 57:16	235:10,24
warnings	274:14 315:12	259:7,9,12	58:18 63:16	237:4,19 238:4
303:16	315:12	260:17 261:4	65:17 66:24	239:2 242:12
warranted	we're 12:11	294:1 295:9	67:8,19 68:4	242:22 243:12
311:19 314:1	25:21,24 26:20	websites 242:3,7	69:3,19 70:2	245:22 252:6
Washington 2:9	26:21 55:14	244:15,19	72:5 78:14	253:20 254:22
2:19 314:16	83:12 93:21	245:5 247:23	79:19 80:2,14	255:22 257:10
322:16,19	117:11,15	248:9,23	80:23 81:18	257:19 258:3
wasn't 152:10	123:17 192:5	250:16 267:2	82:11 83:6,22	258:12 260:22
191:24 197:11	204:21 228:20	279:8 292:21	84:2,12 94:1	261:7,14,21
213:12 232:3	238:18 277:21	293:10,12	102:10 103:19	264:1 265:4
239:13 243:7	308:2 315:22	294:13 295:10	110:5 111:10	266:6 268:19
249:16 261:14	317:5 352:1	week 48:19	114:1 115:6,22	269:22 271:5
267:14 282:23	356:12	118:13,20	116:12,23	271:19 272:14
308:12 342:19	we've 64:8 172:6	122:12 170:15	128:19 134:15	273:19 274:8
354:12	184:15 204:18	216:9,10	137:1 138:16	275:9 276:6,14

278:12,24	272:23 307:10	works 89:10	62:14,18 63:1	205:2 212:20
280:3,21 281:5	335:16 346:9	130:24	63:24 108:6	217:23 231:5
281:10 282:9	355:19	world-renown...	150:7 185:16	245:1 251:16
283:12 284:3	word-for-word	41:18	185:20 196:18	262:9,9,9
285:11,20	182:19	worse 187:11	198:11 209:18	270:7 277:17
287:18 288:18	wording 30:16	worth 353:3	227:22 228:3	285:11,11,12
289:19 290:4	words 103:13	wouldn't 71:22	236:20 270:9	285:20,20,21
291:12 292:14	109:21 186:8	71:22 227:9	295:4 323:24	313:7 317:22
294:11,20	231:19 259:14	236:23,24	325:11 327:5	317:22,22,22
297:21 299:8	279:10 294:5	260:24 272:22	334:21 350:23	317:23 324:10
300:10 301:11	work 25:15,17	333:11	Wu 321:4 322:2	342:15 356:3
303:24 304:17	38:22 39:1,17	write 173:21	WUNDERLI...	year 34:16,18
306:5,8,22	39:19 52:10	174:2,16 175:4	3:8	36:8,10,13
307:13 309:1	56:14 93:20	175:7 177:16	X	44:1 74:4
309:10 310:4	99:2 109:2	201:5,19	X 4:2,10 5:2 6:2	289:15 290:1
310:19 311:3	123:8 125:24	210:24 232:4,7	7:2 127:7,15	291:8 295:18
311:10 312:10	126:16 127:3	232:14 234:17	127:16 129:5	years 11:12 12:1
313:11,20	130:8 135:8	236:21 237:16	264:16 277:6	12:3 32:16
314:6 315:24	147:13 177:11	238:23 240:16	277:11,11	37:2,3 38:21
317:2 318:11	191:4 279:12	writer 56:2	Xs 320:16	46:5 59:9,11
318:18 319:3	worked 37:21	writing 15:1	Y	59:17 61:5
319:22 321:15	66:7 93:17	114:5 135:14	Y 127:7,15,16	75:5 77:1,9,18
322:6,18	105:16 112:13	173:20 203:23	129:5 264:16	84:15 88:15,22
324:12 326:6	125:20 126:11	211:1 232:1,18	Yale 4:21 32:17	88:24 89:1,23
326:24 329:14	127:3 129:15	237:11 241:19	34:17 36:7	90:11,13,16,17
330:11,23	130:22 131:19	writings 56:7	44:13 46:24	96:2,19 104:12
331:21 332:20	141:1 152:23	57:10,18	49:6,8 51:13	107:15 111:1
332:23 333:11	162:20,24	written 13:23	51:16 52:2,4	118:10 126:8
337:9 340:8	330:6	14:23 15:8	54:8,12,16,20	129:23 130:12
342:5 344:5	worker 68:19	16:7,9,12,15	55:1,6,11	130:15 132:2
349:3,5,9,17	workers 66:13	17:3 21:11,22	70:14,15 99:10	162:20,24
350:11 351:10	73:4,9 75:3,8	59:23 60:1,5,7	108:17 110:8	186:1 226:22
356:19 358:5,6	76:6,13,14,21	61:8,12,15,18	116:17 117:6,7	241:21 268:3
358:8 359:1	77:4,17 113:15	63:11 147:14	117:22 178:11	303:8
woman 259:4,6	327:20 328:16	181:22 182:11	178:22 179:11	yesterday
women 289:14	329:22 330:6	204:11 227:5	180:10	142:18 343:21
289:24 291:7	workers' 97:13	239:5 268:14	yeah 35:5 67:12	352:5
295:18,21	97:15,18	269:20 270:11	69:24 92:24	York 91:12 94:3
296:1 303:16	126:18	270:13 271:7	93:11 100:24	yourdiseaseris...
340:3,15	working 39:3	271:11 340:9	118:24 144:12	295:14
wonderful 108:1	45:13 106:18	wrong 11:17	144:12 147:11	Z
297:3,5	109:10 125:6,9	38:7 62:1,11	151:2 159:18	Z 127:7,16,16
Wood 33:2	125:15 128:4	92:14 110:2	165:6 172:19	129:5 264:16
word 28:2 72:6	202:17	123:15 170:4	192:10 193:19	zero 34:1
173:22 185:19	workplace	223:7 252:10	198:2 204:16	0
185:19 187:7	113:7,10,17	263:17 326:19		
188:3 247:1	121:12	wrote 16:3,4		

06510 2:14	242:13,15	347:19	39:23 44:10	299:20 300:23
1	245:8 246:23	16-2738 1:6	227:1,19,22,23	2007 38:12
1 1:10 5:11	246:24 250:23	17 22:9 24:1	228:5 289:7,11	44:10,14 45:17
13:12 14:15	12/2018 6:11	185:11 192:14	291:5 300:12	107:20 109:22
85:14 107:5	12/21/18 243:1,4	204:2 206:9	300:21 301:20	178:5
172:14,17,24	244:11 247:5	207:2 208:10	302:5	2008 45:2 108:5
174:7 186:15	248:7,13 249:8	213:12 251:11	1st 9:6	178:9 301:17
186:18 206:23	295:8	292:9 321:10	2	321:4 322:1
207:13 208:15	12:18 215:20	347:21 348:1	2 5:14 31:15	2009 321:4
246:6,17,18	12:28 228:16	172 5:6	32:3 49:17	2010 148:3,15
249:20 263:11	13 4:14 172:14	17th 206:7	117:17 171:8	202:5
263:23 265:2	172:15 173:1	207:18 209:18	174:7 195:2	2011 311:17
266:20 291:22	174:9 246:7	209:19 213:24	223:1 244:24	2012 118:9
291:24 297:6,7	249:3,24 262:3	18 24:17 338:21	278:17 279:24	119:24 124:3
361:6	262:6,12	1825 2:9	288:2 295:2	321:5
1,400 291:7	305:12 348:4	1835 2:4	296:15 327:9	2014 242:19
1.17 276:10	13-page 26:10	19 204:17	358:15	243:10,13
1.22 315:18	221:18 248:1	205:17 300:24	2.49 276:10	257:13
1.28 338:10	249:9 344:1	341:6	2/25/19 5:7	2015 95:19,23
1.31 278:9	350:23	19103 2:4	2:49 332:5	142:20 143:11
1.92 315:18	14 17:14 62:9	1946 65:15	2:59 332:10	145:8 147:8
1/17/17 5:22	73:7,15 172:18	66:18 326:16	20 32:16 34:1,6	148:12,12
1:10 228:23	172:20 177:24	327:19 328:1	77:1,9,18 89:1	149:10 150:2
10 4:6 17:7,23	246:3 262:3,6	329:7 331:14	89:8 202:16	154:22 157:16
76:24 206:8,11	262:21 273:13	1949-1950 331:3	204:23 211:3	159:2 160:1
206:20 207:10	274:5 278:20	1950 331:8	239:19 264:10	170:5 177:10
207:11 208:14	347:3,6,10	1965 200:14	265:21 361:20	184:18 187:4,5
263:3 266:20	14,000 289:24	1968 33:5,10	20-case-control	257:22 286:13
267:12 291:7	15 20:21 63:22	1972 33:16	273:24	300:19 321:5
345:22 346:1,4	76:24 77:8	198:19 199:8	20-plus 38:20	2016 141:21
346:6,7,21	280:23 284:15	200:23 233:4	203:2	319:8 321:6
347:1	284:16 287:15	233:11,22	2000 87:9	324:19
10:44 117:13	287:20,23	234:4,10 235:8	209:19 234:9	2017 10:21
10:52 117:18	288:2 291:16	237:1,15	248:13 267:13	44:14,14 45:5
100 3:8 110:24	301:24 306:2,4	238:22	269:18 270:12	45:17 46:13
100-plus 217:24	347:11,14	1974 33:1	270:14 273:9	141:21 142:13
100,000 72:1	150 110:24	1976 36:2	273:12 274:6	144:4 154:23
10th 154:22	264:19	1977 34:14 36:4	300:2 321:3	157:17 159:3
157:16 214:1	151 264:19	1978 39:23	20004 2:19	159:12 169:10
11 62:8 332:14	154 6:16	1982 5:10	20006 2:9	169:20,24
333:2,3	155 1:14	226:15 234:1	2000s 331:14	170:6,6 171:4
11-page 288:22	158 6:12	275:1	2003 45:1	178:5 185:11
11:30 34:5	15th 101:7	1988 86:11,12	178:13 321:3	192:14,18
116 4:20	16 286:20 287:1	87:7	2004 62:14	193:5 198:2,12
12 17:23 153:11	287:5,15,21	1992 298:9	274:1 321:3	201:18 204:2
181:11 242:9	291:18 337:2	1995 298:9	2006 273:23	207:2,11
	337:11 347:16	1999 38:11		208:10,14

212:12 213:12	230 7:6	228:22 229:11	46 251:8,12	316:13,16,19
213:13,23	234 2:14 52:24	231:16,16	463-2400 2:19	332:13,20,21
214:2,19	23rd 99:14	242:16 245:2	47 348:18	344:18 345:10
216:15 217:13	24 154:22	246:23 247:10	474-6550 3:4	348:3
218:19 229:8,8	157:16 266:5	247:14 261:23	49 251:15	700 2:9
234:11,18	338:5	280:24 286:18	<hr/> 5 <hr/>	70s 38:19 59:22
235:7 236:20	245 5:8	287:13 295:13	5 85:15 107:5	90:21
237:1,9,10,15	24th 99:14	296:16 328:21	116:17 117:6	78 34:24 37:21
237:22 238:22	143:11	3/10/17 207:4,15	117:21 227:17	783-6400 2:10
239:6 241:3	25 171:5,8	3/27/19 7:6	284:13	787-9222 2:15
258:6	183:13 184:8	3:20 356:10	50 26:2,2,8 75:8	79 37:21
2018 5:10 99:14	185:20 192:22	3:26 356:15	246:17,19	<hr/> 8 <hr/>
239:4 241:3,8	202:16 217:16	357:2,5	263:23 292:1	8 15:13 169:20
243:10 247:17	220:9 231:13	30 28:13 96:19	297:7	192:18 214:2
250:11,19	241:9 274:21	143:9 154:9	504 279:13	214:19 245:11
251:4,12 252:3	335:2 350:24	163:5 211:3	282:12	248:15 285:14
275:1 341:13	255 6:18	312:3 313:17	550 132:12	285:19 286:15
2019 1:10 9:7	2555 3:3	359:16	<hr/> 6 <hr/>	315:13 316:9
94:9 159:13	256-2550 3:9	30-plus 154:19	6 94:20 99:13	316:13,16
171:5,8 176:2	25th 163:24	31 4:15 255:11	311:13 355:14	345:2,3,5,6,7,9
183:13 184:8	229:10 351:20	314 3:9 6:6	355:16	345:15,18,19
185:20 186:19	353:20,24	32 354:24	6.2 343:5	8/8/14 6:19
192:22 212:13	26 171:4 229:7	324 6:8	60 59:16 131:16	8:57 214:20
217:16 218:20	263 5:11	33 230:9	312:3 313:17	215:14
220:4,9 229:10	27 275:2,3,24	335 6:10	600 3:8 132:12	80s 59:14 91:1
231:14 236:21	276:8 297:9	352 6:14	176:3	93:16,18
237:2 238:24	338:5	354 6:20	600,000 160:2	816 3:4
241:8,9 250:19	2738 9:12	362 361:6	181:3 230:23	82 319:11
251:13,18	274 5:9	37 291:22	607 255:14	83 4:17
350:24 351:20	278 5:14	<hr/> 4 <hr/>	63102 3:9	85 182:18
358:15	278-4449 2:5	4 5:19 83:17	64(c) 336:18	877.370.3377
202 2:19	28 158:6 163:3	84:4,6,19	64108 3:4	1:21
203 2:10,15	266:3 338:13	95:18,22 107:3	65 59:16	88 37:8
205 5:21	280 5:15	250:18,21	6th 2:14	8th 216:15
21 250:11 252:3	283,223.25	251:24 262:1,7	<hr/> 7 <hr/>	217:13
285:5,7,9	229:19	273:3,7 292:9	7 14:16 172:7	<hr/> 9 <hr/>
287:7,9 314:21	286 5:17	332:9	183:14 205:13	9 16:18 62:2
322:12 342:16	288,000 159:16	40 111:1 239:19	205:20,21,24	223:2 274:14
343:1	289,701.50	40s 66:1	218:24 220:8	275:1,21
215 2:5	157:18 158:4	42 332:13 333:2	229:2 231:13	296:10 320:10
21st 243:10	2900 2:4	333:3	248:15 285:8	9:07 1:15 9:7
22 178:1 311:14	292 5:19	436 264:18	285:17 296:9	90 235:4
324:4,6,8,9	<hr/> 3 <hr/>	44 250:14 251:3	306:2,3 311:7	917.591.5672
22,000 289:14	3 5:15 37:6	45 75:8 131:15	315:13 316:8	1:21
295:18	83:16,18	315:8		92 319:11 320:7
229 4:16	142:16 174:7	450,000 231:4		
23 285:22				

Exhibit 12

M J y 4 965

P esident's Add ess

**The Environment and Disease:
Association or Causation?**

b H c c
(P o sso E s o M s s,
U v s y o 'Lo o)

b v sso o v o ?
U b

v b
. T b
b v .

O bj M v v v v v
b q b v b q b
b j b v v . How

b b j ; v b v . T
v b b z v b v .
z .

b D v v b . O b v
v b b b b . W
b . H b j b

b H z l h. . T v
z x b

T b q v o o s v
b x ; b x .

b b h v D 19 2 x
v q v b v v

b v v T x v v q
v v v

v x v v v

as great. On the other hand the death rate from coronary thrombosis in smokers is no more than twice, possibly less, the death rate in non-smokers. Though there is good evidence to support causation it is surely much easier in this case to think of some features of life that may go hand-in-hand with smoking – features that might conceivably be the real underlying cause or, at the least, an important contributor, whether it be lack of exercise, nature of diet or other factors. But to explain the pronounced excess in cancer of the lung in any other environmental terms requires some feature of life so intimately linked with cigarette smoking and with the amount of smoking that such a feature should be easily detectable. If we cannot detect it or reasonably infer a specific one, then in such circumstances I think we are reasonably entitled to reject the vague contention of the armchair critic ‘you can’t prove it, there *may* be such a feature’.

Certainly in this situation I would reject the argument sometimes advanced that what matters is the absolute difference between the death rates of our various groups and not the ratio of one to other. That depends upon what we want to know. If we want to know how many extra deaths from cancer of the lung will take place through smoking (i.e. presuming causation), then obviously we must use the absolute differences between the death rates – 0.07 per 1,000 per year in non-smoking doctors, 0.57 in those smoking 1–14 cigarettes daily, 1.39 for 15–24 cigarettes daily and 2.27 for 25 or more daily. But it does not follow here, or in more specifically occupational problems, that this best measure of the effect upon mortality is also the best measure in relation to aetiology. In this respect the ratios of 8, 20 and 32 to 1 are far more informative. It does not, of course, follow that the differences revealed by ratios are of any practical importance. Maybe they are, maybe they are not; but that is another point altogether.

We may recall John Snow’s classic analysis of the opening weeks of the cholera epidemic of 1854 (Snow 1855). The death rate that he recorded in the customers supplied with the grossly polluted water of the Southwark and Vauxhall Company was in truth quite low – 71 deaths in each 10,000 houses. What stands out vividly is the fact that the small rate is 14 times the figure of 5 deaths per 10,000 houses supplied with the sewage-free water of the rival Lambeth Company.

In thus putting emphasis upon the strength of an association we must, nevertheless, look at the obverse of the coin. We must not be too ready to dismiss a cause-and-effect hypothesis merely on

the grounds that the observed association appears to be slight. There are many occasions in medicine when this is in truth so. Relatively few persons harbouring the meningococcus fall sick of meningococcal meningitis. Relatively few persons occupationally exposed to rat’s urine contract Weil’s disease.

(2) *Consistency*: Next on my list of features to be specially considered I would place the *consistency* of the observed association. Has it been repeatedly observed **by different persons, in different places, circumstances and times?**

This requirement may be of special importance for those rare hazards singled out in the Section’s terms of reference. With many alert minds at work in industry today many an environmental association may be thrown up. Some of them on the customary tests of statistical significance will appear to be unlikely to be due to chance. Nevertheless whether chance is the explanation or whether a true hazard has been revealed may sometimes be answered only by a repetition of the circumstances and the observations.

Returning to my more general example, the Advisory Committee to the Surgeon-General of the United States Public Health Service found the association of smoking with cancer of the lung in 29 retrospective and 7 prospective inquiries (US Department of Health, Education & Welfare 1964). The lesson here is that broadly the same answer has been reached in quite a wide variety of situations and techniques. In other words we can justifiably infer that the association is not due to some constant error or fallacy that permeates every inquiry. And we have indeed to be on our guard against that.

Take, for instance, an example given by Heady (1958). Patients admitted to hospital for operation for peptic ulcer are questioned about recent domestic anxieties or crises that may have precipitated the acute illness. As controls, patients admitted for operation for a simple hernia are similarly quizzed. But, as Heady points out, the two groups may not be *in pari materia*. If your wife ran off with the lodger last week you still have to take your perforated ulcer to hospital without delay. But with a hernia you might prefer to stay at home for a while – to mourn (or celebrate) the event. No number of exact repetitions would remove or necessarily reveal that fallacy.

We have, therefore, the somewhat paradoxical position that the different results of a different inquiry certainly cannot be held to refute the

original evidence; yet the same results from precisely the same form of inquiry will not invariably greatly strengthen the original evidence. I would myself put a good deal of weight upon similar results reached in quite different ways, e.g. prospectively and retrospectively.

Once again looking at the obverse of the coin there will be occasions when repetition is absent or impossible and yet we should not hesitate to draw conclusions. The experience of the nickel refiners of South Wales is an outstanding example. I quote from the Alfred Watson Memorial Lecture that I gave in 1962 to the Institute of Actuaries:

'The population at risk, workers and pensioners, numbered about one thousand. During the ten years 1929 to 1938, sixteen of them had died from cancer of the lung, eleven of them had died from cancer of the nasal sinuses. At the age specific death rates of England and Wales at that time, one might have anticipated one death from cancer of the lung (to compare with the 16), and a fraction of a death from cancer of the nose (to compare with the 11). In all other bodily sites cancer had appeared on the death certificate 11 times and one would have expected it to do so 10-11 times. There had been 67 deaths from all other causes of mortality and over the ten years' period 72 would have been expected at the national death rates. Finally division of the population at risk in relation to their jobs showed that the excess of cancer of the lung and nose had fallen wholly upon the workers employed in the chemical processes.

'More recently my colleague, Dr Richard Doll, has brought this story a stage further. In the nine years 1948 to 1956 there had been, he found, 48 deaths from cancer of the lung and 13 deaths from cancer of the nose. He assessed the numbers expected at normal rates of mortality as, respectively 10 and 0.1.

'In 1923, long before any special hazard had been recognized, certain changes in the refinery took place. No case of cancer of the nose has been observed in any man who first entered the works after that year, and in these men there has been no excess of cancer of the lung. In other words, the excess in both sites is uniquely a feature in men who entered the refinery in, roughly, the first 23 years of the present century.

'No causal agent of these neoplasms has been identified. Until recently no animal experimentation had given any clue or any support to this wholly statistical evidence. Yet I wonder if any of us would hesitate to accept it as proof of a grave industrial hazard?' (Hill 1962).

In relation to my present discussion I know of no parallel investigation. We have (or certainly had) to make up our minds on a unique event; and there is no difficulty in doing so.

(3) *Specificity* One reason, needless to say, is the specificity of the association, the third characteristic which invariably we must consider. If, as here, the association is limited to specific workers and to particular sites and types of disease and there is no association between the work and other modes of dying, then clearly that is a strong argument in favour of causation.

We must not, however, over-emphasize the importance of the characteristic. Even in my present example there is a cause and effect relationship with two different sites of cancer – the lung and the nose. Milk as a carrier of infection and, in that sense, the cause of disease can produce such a disparate galaxy as scarlet fever, diphtheria, tuberculosis, undulant fever, sore throat, dysentery and typhoid fever. Before the discovery of the underlying factor, the bacterial origin of disease, harm would have been done by pushing too firmly the need for specificity as a necessary feature before convicting the dairy.

Coming to modern times the prospective investigations of smoking and cancer of the lung have been criticized for not showing specificity – in other words the death rate of smokers is higher than the death rate of non-smokers from many causes of death (though in fact the results of Doll & Hill, 1964, do not show that). But here surely one must return to my first characteristic, the strength of the association. If other causes of death are raised 10, 20 or even 50% in smokers whereas cancer of the lung is raised 900-1,000% we have specificity – a specificity in the magnitude of the association.

We must also keep in mind that diseases may have more than one cause. It has always been possible to acquire a cancer of the scrotum without sweeping chimneys or taking to mule-spinning in Lancashire. One-to-one relationships are not frequent. Indeed I believe that multi-causation is generally more likely than single causation though possibly if we knew all the answers we might get back to a single factor.

In short, if specificity exists we may be able to draw conclusions without hesitation; if it is not apparent, we are not thereby necessarily left sitting irresolutely on the fence.

(4) *Temporality* My fourth characteristic is the temporal relationship of the association – which is the cart and which the horse? This is a question which might be particularly relevant with diseases of slow development. Does a particular diet lead to disease or do the early stages of the disease lead to those peculiar dietetic habits? Does a

particular occupation or occupational environment promote infection by the tubercle bacillus or are the men and women who select that kind of work more liable to contract tuberculosis whatever the environment – or, indeed, have they already contracted it? This temporal problem may not arise often but it certainly needs to be remembered, particularly with selective factors at work in industry.

(5) Biological gradient: Fifthly, if the association is one which can reveal a biological gradient, or dose-response curve, then we should look most carefully for such evidence. For instance, the fact that the death rate from cancer of the lung rises linearly with the number of cigarettes smoked daily, adds a very great deal to the simpler evidence that cigarette smokers have a higher death rate than non-smokers. That comparison would be weakened, though not necessarily destroyed, if it depended upon, say, a much heavier death rate in light smokers and a lower rate in heavier smokers. We should then need to envisage some much more complex relationship to satisfy the cause-and-effect hypothesis. The clear dose-response curve admits of a simple explanation and obviously puts the case in a clearer light.

The same would clearly be true of an alleged dust hazard in industry. The dustier the environment the greater the incidence of disease we would expect to see. Often the difficulty is to secure some satisfactory quantitative measure of the environment which will permit us to explore this dose-response. But we should invariably seek it.

(6) Plausibility: It will be helpful if the causation we suspect is biologically plausible. But this is a feature I am convinced we cannot demand. What is biologically plausible depends upon the biological knowledge of the day.

To quote again from my Alfred Watson Memorial Lecture (Hill 1962), there was

‘... no biological knowledge to support (or to refute) Pott’s observation in the 18th century of the excess of cancer in chimney sweeps. It was lack of biological knowledge in the 19th that led a prize essayist writing on the value and the fallacy of statistics to conclude, amongst other “absurd” associations, that “it could be no more ridiculous for the stranger who passed the night in the steerage of an emigrant ship to ascribe the typhus, which he there contracted, to the vermin with which bodies of the sick might be infected”. And coming to nearer times, in the 20th century there was no biological knowledge to support the evidence against rubella.’

In short, the association we observe may be one new to science or medicine and we must not dismiss it too light-heartedly as just too odd. As Sherlock Holmes advised Dr Watson, ‘when you have eliminated the impossible, whatever remains, however improbable, must be the truth.’

(7) Coherence: On the other hand the cause-and-effect interpretation of our data should not seriously conflict with the generally known facts of the natural history and biology of the disease – in the expression of the Advisory Committee to the Surgeon-General it should have coherence.

Thus in the discussion of lung cancer the Committee finds its association with cigarette smoking coherent with the temporal rise that has taken place in the two variables over the last generation and with the sex difference in mortality – features that might well apply in an occupational problem. The known urban/rural ratio of lung cancer mortality does not detract from coherence, nor the restriction of the effect to the lung.

Personally, I regard as greatly contributing to coherence the histopathological evidence from the bronchial epithelium of smokers and the isolation from cigarette smoke of factors carcinogenic for the skin of laboratory animals. Nevertheless, while such laboratory evidence can enormously strengthen the hypothesis and, indeed, may determine the actual causative agent, the lack of such evidence cannot nullify the epidemiological observations in man. Arsenic can undoubtedly cause cancer of the skin in man but it has never been possible to demonstrate such an effect on any other animal. In a wider field John Snow’s epidemiological observations on the conveyance of cholera by the water from the Broad Street pump would have been put almost beyond dispute if Robert Koch had been then around to isolate the vibrio from the baby’s nappies, the well itself and the gentleman in delicate health from Brighton. Yet the fact that Koch’s work was to be awaited another thirty years did not really weaken the epidemiological case though it made it more difficult to establish against the criticisms of the day – both just and unjust.

(8) Experiment: Occasionally it is possible to appeal to experimental, or semi-experimental, evidence. For example, because of an observed association some preventive action is taken. Does it in fact prevent? The dust in the workshop is reduced, lubricating oils are changed, persons stop smoking cigarettes. Is the frequency of the associated events affected? Here the strongest

*

support for the causation hypothesis may be revealed.

(9) *Analogy*: In some circumstances it would be fair to judge by analogy. With the effects of thalidomide and rubella before us we would surely be ready to accept slighter but similar evidence with another drug or another viral disease in pregnancy.

Here then are nine different viewpoints from all of which we should study association before we cry causation. What I do not believe – and this has been suggested – is that we can usefully lay down some hard-and-fast rules of evidence that *must* be obeyed before we accept cause and effect. None of my nine viewpoints can bring indisputable evidence for or against the cause-and-effect hypothesis and none can be required as a *sine qua non*. What they can do, with greater or less strength, is to help us to make up our minds on the fundamental question – is there any other way of explaining the set of facts before us, is there any other answer equally, or more, likely than cause and effect?

Tests of Significance

No formal tests of significance can answer those questions. Such tests can, and should, remind us of the effects that the play of chance can create, and they will instruct us in the likely magnitude of those effects. Beyond that **they contribute nothing to the 'proof' of our hypothesis.**

Nearly forty years ago, amongst the studies of occupational health that I made for the Industrial Health Research Board of the Medical Research Council was one that concerned the workers in the cotton-spinning mills of Lancashire (Hill 1930). The question that I had to answer, by the use of the National Health Insurance records of that time, was this: Do the workers in the cardroom of the spinning mill, who tend the machines that clean the raw cotton, have a sickness experience in any way different from that of other operatives in the same mills who are relatively unexposed to the dust and fibre that were features of the cardroom? The answer was an unqualified 'Yes'. From age 30 to age 60 the cardroom workers suffered over three times as much from respiratory causes of illness whereas from non-respiratory causes their experience was not different from that of the other workers. This pronounced difference with the respiratory causes was derived not from abnormally long periods of sickness but rather from an excessive number of repeated absences from work of the cardroom workers.

All this has rightly passed into the limbo of forgotten things. What interests me today is this: My results were set out for men and women separately and for half a dozen age groups in 36 tables. So there were plenty of sums. Yet I cannot find that anywhere I thought it necessary to use a test of significance. The evidence was so clear-cut, the differences between the groups were mainly so large, the contrast between respiratory and non-respiratory causes of illness so specific, that no formal tests could really contribute anything of value to the argument. So why use them?

Would we think or act that way today? I rather doubt it. Between the two world wars there was a strong case for emphasizing to the clinician and other research workers the importance of not overlooking the effects of the play of chance upon their data. Perhaps too often generalities were based upon two men and a laboratory dog while the treatment of choice was deduced from a difference between two bedfuls of patients and might easily have no true meaning. It was therefore a useful corrective for statisticians to stress, and to teach the need for, tests of significance merely to serve as guides to caution before drawing a conclusion, before inflating the particular to the general.

I wonder whether the pendulum has not swung too far – not only with the attentive pupils but even with the statisticians themselves. To decline to draw conclusions without standard errors can surely be just as silly? Fortunately I believe we have not yet gone so far as our friends in the USA where, I am told, some editors of journals will return an article because tests of significance have not been applied. Yet there are innumerable situations in which they are totally unnecessary – because the difference is grotesquely obvious, because it is negligible, or because, whether it be formally significant or not, it is too small to be of any practical importance. What is worse the glitter of the *t* table diverts attention from the inadequacies of the fare. Only a tithe, and an unknown tithe, of the factory personnel volunteer for some procedure or interview, 20% of patients treated in some particular way are lost to sight, 30% of a randomly-drawn sample are never contacted. The sample may, indeed, be akin to that of the man who, according to Swift, 'had a mind to sell his house and carried a piece of brick in his pocket, which he showed as a pattern to encourage purchasers'. The writer, the editor and the reader are unmoved. The magic formulæ are there.

Of course I exaggerate. Yet too often I suspect we waste a deal of time, we grasp the shadow and

b
v v P A b B v g v b g
L a
v b g g g I
g v g v I v
g v
v O b A v
g v b v b A b v g
(b) b g v
g b B g v
I v v g v W R b B g b v b
b v b I b v 8 30
v b
W b b
v b v g
v g g g
g I g
g b g b v v
O v g b z g
g g b b

F C I : M C T L
D () L ; 333
D 2 & A (6) Brit m J. 3 60
A () M rl , n 305
A (30) m g O L h g M
I h h 59. M O L
(62) Inst Actu 7
L () O h M C mm Ch 2
U D () 36 Y)
h P h P & (6) m g
03 h